WEEKLY CROSSWORD—CASH PRIZES!

HOME CRAFTS
WOOD WORKING
MODEL MAKING
AMATEUR MECHANICS
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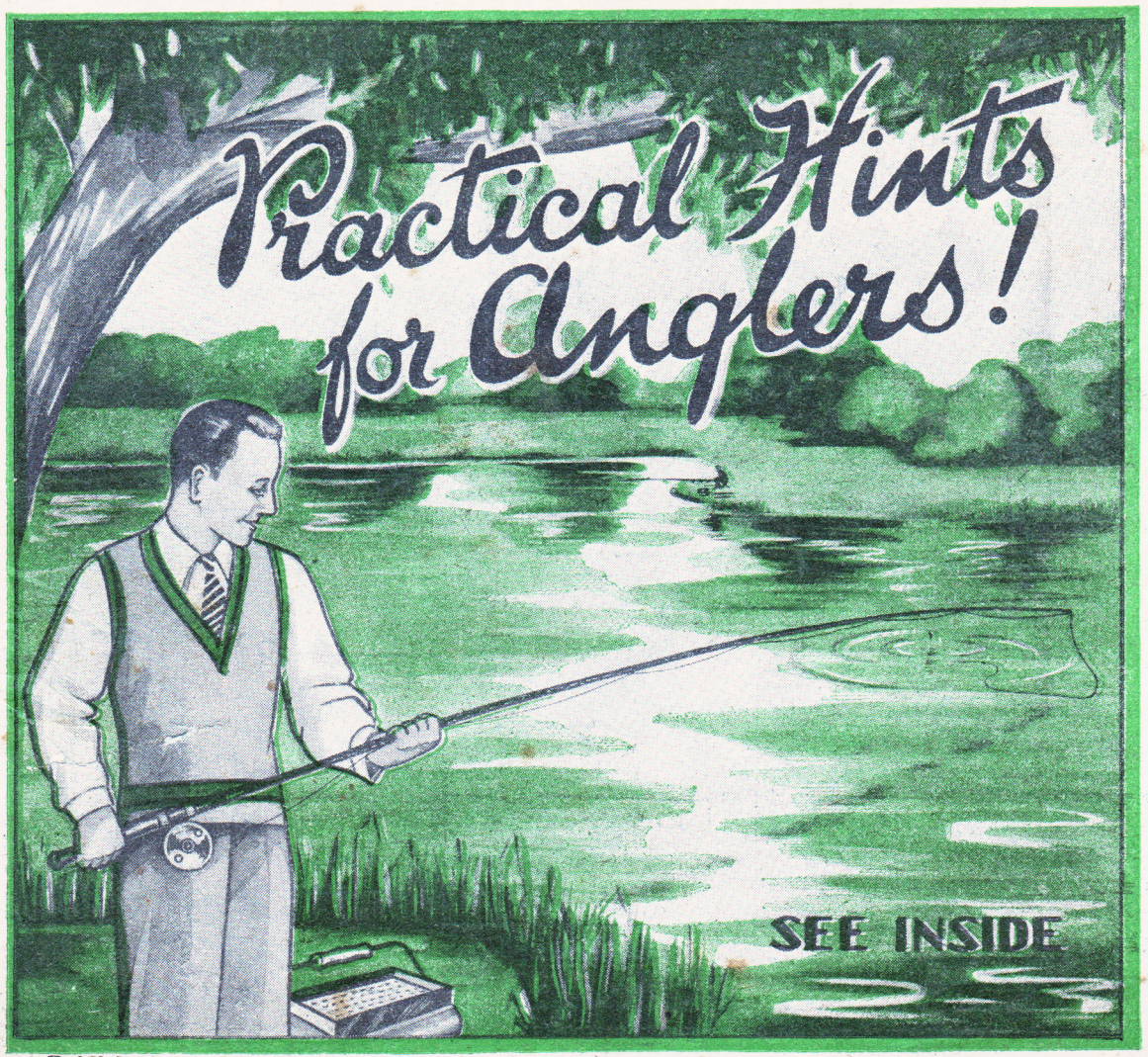
Hobbies

2D

July 11th, 1931.
No. 1864.
Published every Wednesday.



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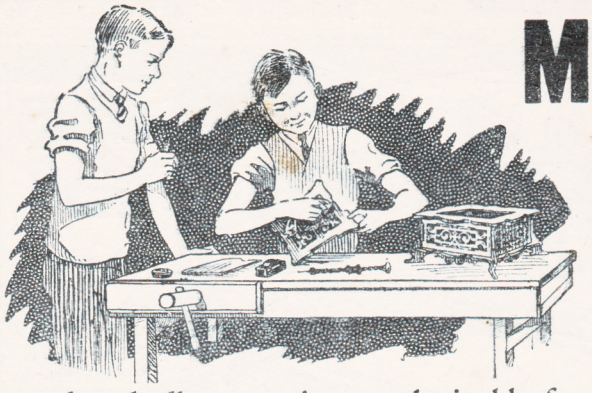
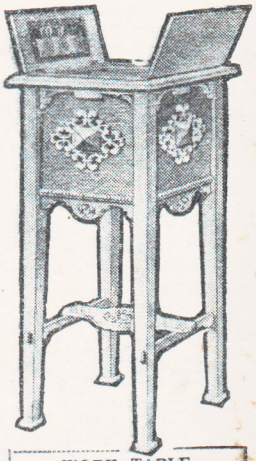


Modern Fretwork

Your people and friends would be delighted with gifts like some of these, wouldn't they? They are quite easy for the handyman to make because full size paper patterns, wood and all accessories are obtainable for a few shillings. You can't go wrong in the construction, and anybody with a fretwork set can go ahead with the making. Get them from Hobbies Ltd. All particulars are given and the wood is obtainable ready to use.



WORK TABLE
2ft. 6ins. high. Design No. 1770—4d. Mahogany parts and a set of grooved legs, with ornamental moulding, 14/6, post 1/3. Two pairs hinges, 2d.

UMBRELLA STAND
Stands 2ft. 6ins. high. Design No. 1725—4d. Mahogany boards, legs and moulding, 7/6, postage 1/-. A Draining tray (6144), 1/-, post 3d.

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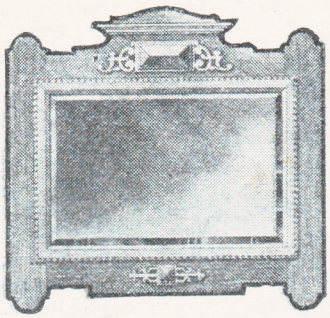
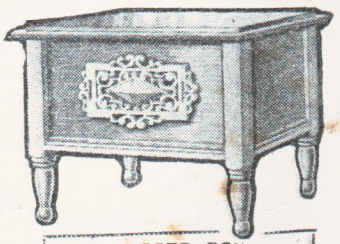
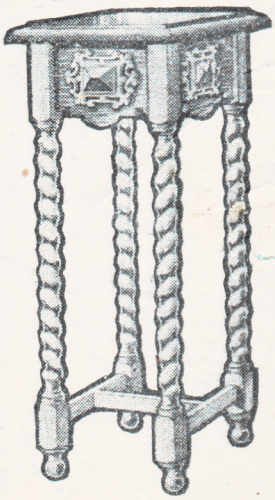


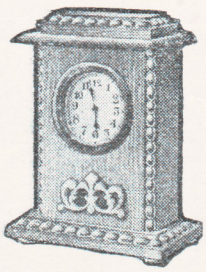
A SMALL OVERMANTEL
19ins. square. Design No. 1807. Price 4d. Wood, ornaments and beading, 4/6. Mirror (No. 5747), 8/3. Postage 1/-.



SLIPPER BOX
Stands 15½ins. high. Design No. 1781—4d. Parcel of oak, with grooved legs, corner posts, moulding, and fancy wooden ornaments, 15/- complete. Carriage forward.



PALM STAND
Stands 2ft. 6ins. high. Design No. 1806 — 4d. Oak boards and turned Jacobean legs with all ornaments supplied for 12/6, post 1/-.



CLOCK
Clock 6½ins. high. Design for clock and a dressing-table tray No. 1758—4d. Mahogany for both, 2/2, post 6d. A 30-hour clock 5/-. Transfer and knob, 5d., postage 3d.

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LET YOUR EDITOR SOLVE YOUR PROBLEMS. See page 450.

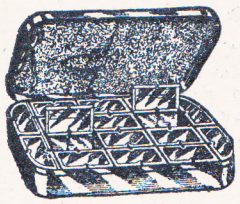
Hobbies

Vol. 72. No. 1,864 Published Every Wednesday JULY 11th, 1931

THIS WEEK'S CLEVER IDEAS

An Ingenious Hot-Air Model.

A LITTLE novelty which recently made its appearance on the market and which retails at 6d. is a model of the Eddystone Lighthouse which works by hot air. A small pellet candle in a tin container is lit and placed in the base of the model. The heat generated causes a vane fixed at the top to revolve a dome containing three coloured windows—red, green and yellow. These flash out their colours in a most realistic way and the dome continues to revolve for about twenty minutes. Fresh pellets are obtainable quite cheaply. Two or three of them used as table decorations give quite a picturesque effect at night.



Of interest to anglers—a dry-fly box.

A Fly-Box for Anglers.

THE fly-box illustrated here will be appreciated by anglers. It contains a number of divisions, each of which has a glass-topped hinged lid, so that the contents of each division may be seen. Although intended for the storage of dry flies for fishing purposes, it readily suggests itself as of use for storing screws, nails and other small parts.

An Accumulator Tester.

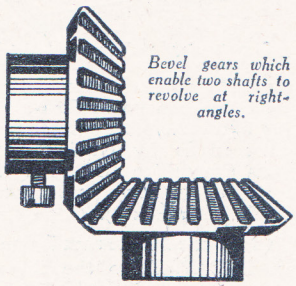
A NEAT tester for wireless and other accumulators consists of a gadget shaped like the old glass fountain-pen filler, having a nozzle at one end and a rubber bulb at the other. Inside the tester are three coloured beads, and when liquid is drawn up from the accumulator by squeezing the bulb, they indicate, according to which particular bead floats on the surface, whether the accumulator is fully charged, half-charged or discharged.

A Magnetised Hammer.

WE have frequently drawn attention in these pages to the advantages of the magnetic screwdriver. A magnetised hammer now available enables the worker to do with small nails and tacks what the magnetic screwdriver does for small steel screws. This hammer is of small size and suitable for most household purposes. It will hold a nail or tack up to 1½in. in length and avoids hammering the finger-nails.

Bevel Gears for Right-Hand Drive.

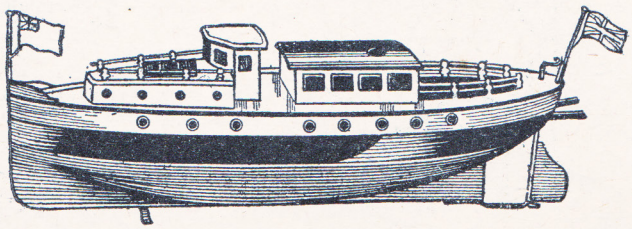
MOST model makers sooner or later encounter the difficulty of transmitting motion from one shaft to another, which is disposed at right-angles to it. Bevel gears enable this to be done, and it is worth noting that machine-cut gears of this sort made of brass, complete with coupling screws, are obtainable in ½in. and ⅝in. diameter for a few pence.



Bevel gears which enable two shafts to revolve at right-angles.

A Model Hot-Air Boat.

MODEL boats are usually driven by screw propellers actuated either by steam, clockwork or electricity. Hot air has been used in a few cases, but seldom on commercial model boats. A model boat now being sold and working on the principle of jet propulsion, which has formed the subject of one or two articles recently in HOBBIES, is attractive in form and capable of fairly high speed. It retails at 8s. 6d.



A model boat driven by hot air.

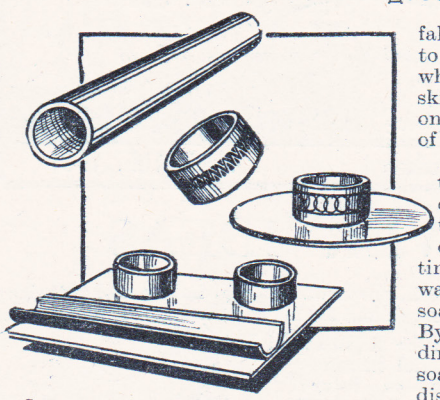
A Nib with Many Points.

THOSE of our readers who dabble in minims, crotchets, semibreves and other mysterious and quite unnecessary musical terms (surely a shorter word can be found than demisemiquaver!) will welcome a pen with five nibs which enables a stave to be ruled at one stroke. The nibs are sold two on a card, complete with handle.

NOTES AND NOTIONS from our READERS

A Use for Old Postal Tubes.

OLD postal tubes can be made into quite a number of useful articles. The accompanying sketch shows a few of the many things that can be made. By cutting the tubes into rings and suitably decorating them



Serviette rings made from old postal tubes.

they will make fine serviette rings. Inkstands can be made by fixing a ring to a cardboard base, the pen-rest being made by cutting the tube down the centre and gluing half to the base, as shown in the sketch.—E. M. (No address).

An Efficient Dark-room Lamp.

REFERENCE to the sketch will show the method of connecting up, and the parts required for making this simple and efficient dark-room lamp. Obtain a red electric bulb, and connect up to an old H.T. battery as shown.—C. R. (Salford).

Preventing the Soap from Sliding.

EVERYONE knows that annoying trick a cake of soap has, of slipping from anywhere where it may be placed when in use, either falling back into the water, or on to the floor. Here is a method which will make the soap non-skid, and which will also make one cake of soap do the work of two.

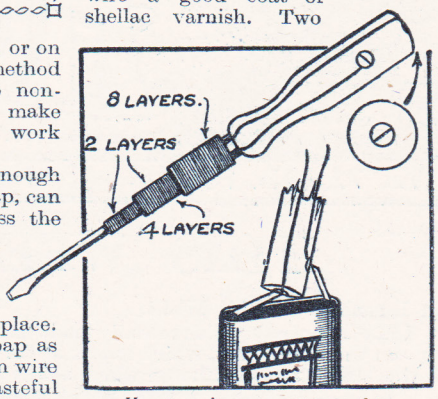
A piece of tin-foil, large enough to cover one side of the soap, can easily be obtained. Press the tin-foil firmly on one side of the soap, and, if placed tin-foil side down on the wash basin, that cake of soap will never slip from its place. By placing tin-foil on the soap as directed, and using an open wire soap cage instead of the wasteful dish, every cake of soap will last twice as long.

Boiling the Picnic Kettle.

TO boil the camp kettle there are few things better than a little paraffin and salt. These can be taken with one or, in any case, they can be obtained from almost any cottage. Pile the salt on a good-sized tin lid, and then soak it with paraffin. Arrange three stones of equal height round the lid and stand the kettle on them. Then set the oil-soaked salt on fire. You will get a fine blaze that will soon boil the kettle. When there is a wind, the tin lid should be placed in a hollow for shelter.

How to Make a Magnetic Screwdriver.

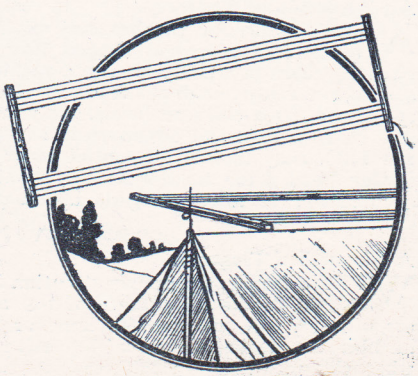
THE screwdriver shown in the sketch will be found very useful for inserting screws into awkward places. Being magnetised, it holds small screws on the tip of the blade, thus allowing them to be driven into places where the hands cannot reach. Bind an ordinary screwdriver with 28 SWG wire as shown, and give the wire a good coat of shellac varnish. Two screws are then driven into the handle and the wire is connected to them. The screwdriver can be charged with an ordinary flashlamp battery.—W. H. (nr. Wrexham).



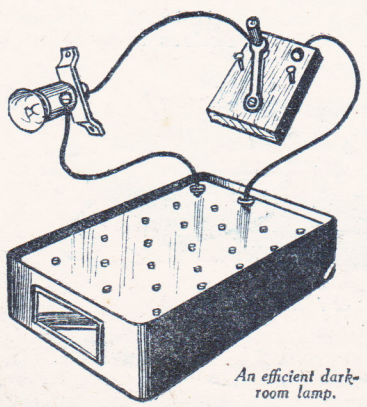
How to make a magnetic screwdriver.

A Handy Aerial for the Camper.

THE aerial shown in the diagram will prove very useful to campers, as it can be carried in a very small space. It consists of two pieces of wood, 15in. by ½in. by ½in. Four holes are bored at each end of the wood about an inch apart. Twist a piece of thick wire round each tent pole at the top, so that a piece extends upwards above the top of the tent. Bend the wires half-way up so that the bars do not slip down (see sketch). Thread the aerial wire through the holes in the two pieces of wood and the spare end can be used as a lead-in to the set.—(No address).



A handy aerial for campers



An efficient dark-room lamp.

THAT DODGE OF *YOURS?*

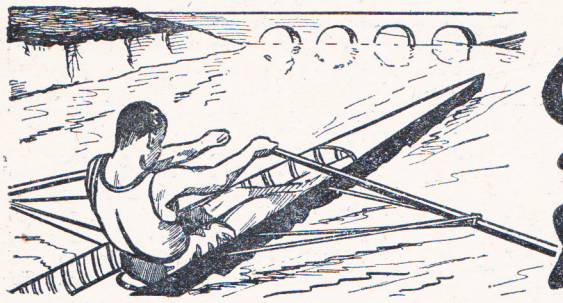
Why not pass it on to us? We pay Five Shillings for every item published on this page. Mark your envelope "Notes and Notions." *Every notion sent in MUST be original.*

THIS WEEK'S MENTAL NUT.

TWO friends were discussing a large collie dog when one asked the owner the dog's age. "Well, five years ago," was the reply, "I was four times older than the dog, and now it is only three times as old. What was the dog's age?"

Answer to Last Week's Problem.

THE price received in every case was 105 farthings. Therefore the greatest number of women is eight, as the goods could only be sold in the following rates: 105lbs. at ¼d., 35 at 3, 21 at 5, 15 at 7, 7 at 15, 5 at 21, 3 at 35 and 1lb. at 105 farthings.



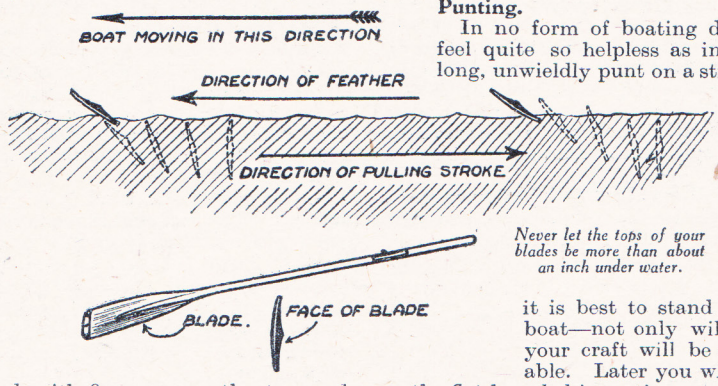
Boating

By "Riverside"

COMPARATIVELY little knowledge makes all the difference to the pleasure, and safety, of handling a boat.

Rowing generally refers to the use of a single oar; *sculling* to the handling of a pair.

When first you grip your oars you may be troubled by the discovery that they seem too long, their handles overlapping considerably. This, however, is quite as it should be, and allows for easy reach and adequate leverage when the arms are at full stretch to the front. As the oars are drawn up and begin to overlap, let one pass just above the other—whichever seems more convenient.



Never let the tops of your blades be more than about an inch under water.

Each oar should be gripped near its end, with fingers over the top and thumb underneath. The wrist should be straight, so that the hand is in line with the forearm while you are pulling.

With the arms at full stretch to the front and the chest forward between the knees, dip your blades and begin to swing the body backwards. The head throughout should be in line with the spine. When the body is just beyond the vertical, continue the stroke by drawing up the arms until the thumbs touch the chest. Then drop the wrists until the blades lift and push the hands forward again. If they have been turned upwards by the wrists dropping, the blades will not be flat, so that they flail the water as they slide back. When ready for the new pull the hands turn, once more bringing up the wrists and so making the blades upright as they dip.

There are no jerks in good sculling, but smooth leisurely pulls.

Keep your feet firmly against the stretcher—which should be adjusted to a comfortable distance—and never let the tops of your blades be more than about an inch under the surface of the water. Remember that a row boat always gives way to one with a sail, or one that cannot be manœuvred so easily.

Punting.

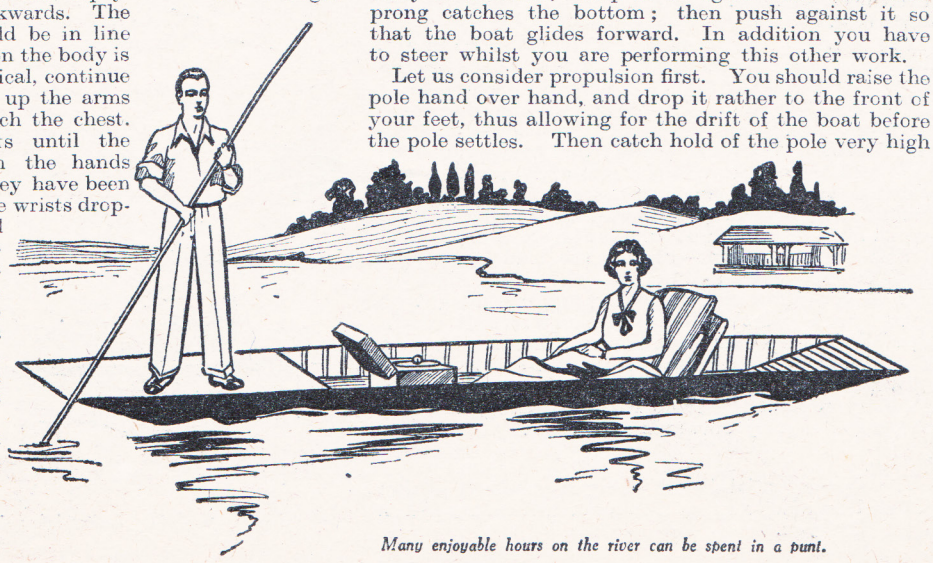
In no form of boating does a complete novice feel quite so helpless as in punting. To keep a long, unwieldly punt on a straight course by pushing on one side of it with a heavy pole seems a terribly difficult task. Yet with a little practice and a clear understanding of what to do the thing can soon be mastered.

At your first trial it is best to stand in the middle of the boat—not only will you feel safer, but your craft will be a little more manageable. Later you will stand at the stern, on the flat boarded-in section.

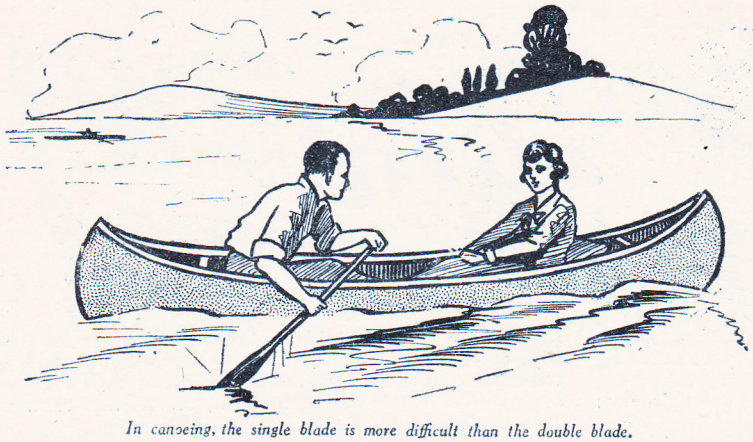
It does not matter on which side you use your pole, though having settled which seems more comfortable, stick to that way.

Your task is to lift the pole clear of the surface; carry it forward; drop it in again until the metal prong catches the bottom; then push against it so that the boat glides forward. In addition you have to steer whilst you are performing this other work.

Let us consider propulsion first. You should raise the pole hand over hand, and drop it rather to the front of your feet, thus allowing for the drift of the boat before the pole settles. Then catch hold of the pole very high



Many enjoyable hours on the river can be spent in a punt.



In canoeing, the single blade is more difficult than the double blade.

with the outside hand and pull back against it—and you will be ready to lift it again.

Steering is effected by pulling or pushing, sideways, against the pole, at the same time as you are thrusting forward. If you imagine the pole to be a fixed post in the river, you can quite well see how the direction of your punt can be influenced by pulling its stern towards the post or pressing away from it. That is just how you must consider the pole.

With practice you will get the "feel" of your craft, so that you will check tendencies to swerve at their very beginnings when merely the slightest deflection is necessary.

Paddling a Canoe.

There are two sorts of canoes—the Rob Roy, and the Canadian. The former is flat at the prow and stern, and is completely covered in except for the round hole to fit the body of the occupant; the latter is open right along and curls up at each end. For the Rob Roy a double-bladed paddle is generally used, and a single paddle for the Canadian.

Using the double blade is a fairly simple matter. Each end in turn dips neatly and sweeps back with a smooth, long stroke. As one end dips, of course, the other lifts.

The single blade is more interesting and difficult, since it is used only on one side of the canoe. Sit upright with your back against a support, and preferably in the stern (an Indian kneels, but that requires much more practice). Grip the end of the handle with the hand farthest from the paddle, and place the other hand well below it to act as a sort of fulcrum. As in punting, you have two distinct matters to concern yourself with—the propulsion and the steering, and the second must be performed simultaneously with the first.

Your earliest attempt—dipping the blade, making a short strong stroke, and lifting it clear—will show you how plain strokes swerve your canoe to the side. A correct stroke, which will keep you on a straight course, is as follows—dip your blade well out from the side, and, of course, to the front; sweep it inwards and backwards until it comes close against your canoe; and then, with the inner edge of the blade slightly leading, finish by carrying it slightly outwards once more.

Sailing.

The first essential before doing any sailing is that you shall be able to swim, then an occasional immersion won't hurt you.

Choose a plain lug sail for a start, and have your boat equipped with oars in case the wind should drop. You must make yourself acquainted with your equipment first. The *mast*, of course, is upright and rigid. The top of the sail is laced to the *yard*, while the bottom corner is tied to the boom. There are three ropes—the *halyard*, by which the sail is raised or lowered; the *tack*, which secures the bottom of the sail to the mast; the *sheet*, which is fastened near the end of the boom, and which you hold. On no account must the sheet ever be tied to anything.

To get the sail in position you haul on the halyard until it will pull over no farther and then twist the end round the hook which is found at the bottom of the mast. The tack is then threaded through the loop, which is also at the bottom of the mast—after you have hooked the end of the boom into the metal eye which awaits it.

The outer end of the boom, to which the sheet is attached, is now free to swing in any direction, and so can be adjusted to meet the requirements of the wind. Thus you sit in the stern with the sheet in your hand, and are able to swing the boom when necessary above your head.

Sailing before the wind is fairly easy, with the sail well out. But real skill is required when you are going into the wind. Then you must *tack*, that is take long zigzags.

When going into the wind sit to windward and pull the sheet in. At the end of your tack, swing the boom across; change your side, and slant back again. Use the rudder as little as possible, for it obviously acts as a drag.

Sailing before the wind is fairly easy, with plenty of sail set.

A PENDULUM BIRD— AND HOW IT IS MADE

An Amusing Mechanical Toy

By "Schemer"

HERE is an amusing toy which can be made by any craftsman with a few tools, and little material. It is not only mechanical, but scientific, inasmuch as it employs a split or compound pendulum. The materials required are as follows: a small quantity of plywood, some thread, a small quantity of lead, a piece of flower wire, and two small panel pins or round nails.

The processes are not difficult, either. If you cannot draw an ellipse by the recognized way (see Fig. 1), draw a freehand oval. The small mortise and tenon joint for the support can be cut with a fret-saw. Drill the small holes with a pin drill, as supplied with any fretwork set, and the lead weight is quite simple to cast.

The two bodies of the bird are cut from two pieces of three-ply wood tacked together, measuring 2½in. by 4in.; the oval is drawn on this and then the two are cut together. Next the base piece, 4in. by 2in., is cut out, and the hole cut in the middle must allow the support (Fig. 2) to fit into it tightly. The head and tail (see Fig. 3) are drawn on a small piece of plywood and cut out. All this cutting can be done with a fret-saw. At the end of the head and tail pierce a small hole, as shown at Z in Fig. 4; this is to tie the threads to.

Half an inch from these small pin-holes drill another hole so that your two round nails will fit comfortably; these holes are marked A and B. Again, in the figure showing the side shape, drill the same sized holes at X and Y as indicated, ½in. from the end of the middle dotted line.

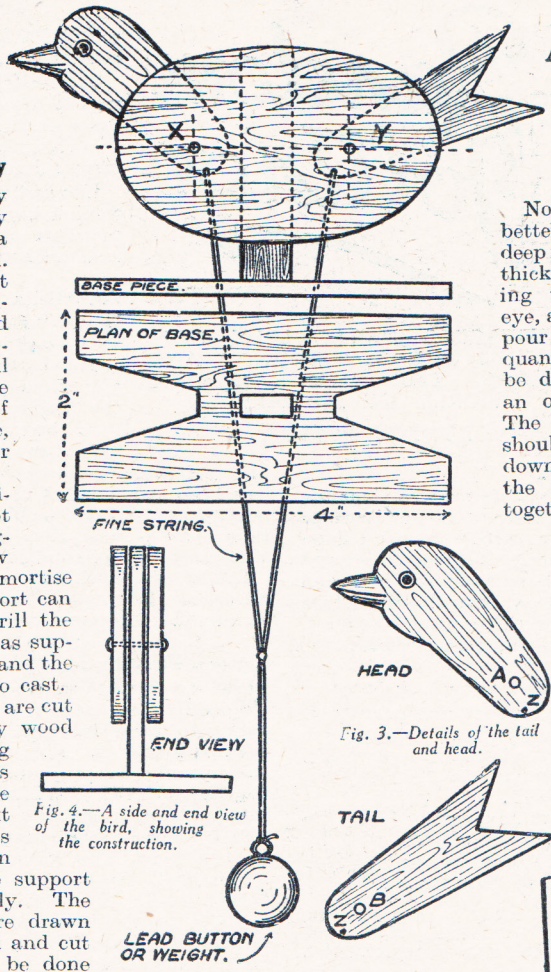


Fig. 4.—A side and end view of the bird, showing the construction.

Fig. 3.—Details of the tail and head.

Now, either cut a piece of lead or, better still, bore a ¾in. hole ½in. deep into an odd piece of wood 1in. thick (see Fig. 5), and after inserting the ends of a twisted wire eye, as shown in Fig. 5 and Fig. 6, pour into the mould a small quantity of molten lead; this can be done by melting the lead in an old spoon over the gas-ring. The length of the two threads should each be 2ft.; pull these down together and 6in. down from the top of the thread, tie them together with one or two secure knots. From there downwards only one thread is necessary, so at the end of the remaining 18in. tie the lead weight. If you are handy with colours, you can, on assembling your bird, paint it to any suitable colour.

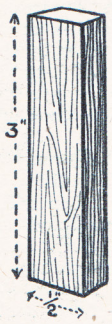
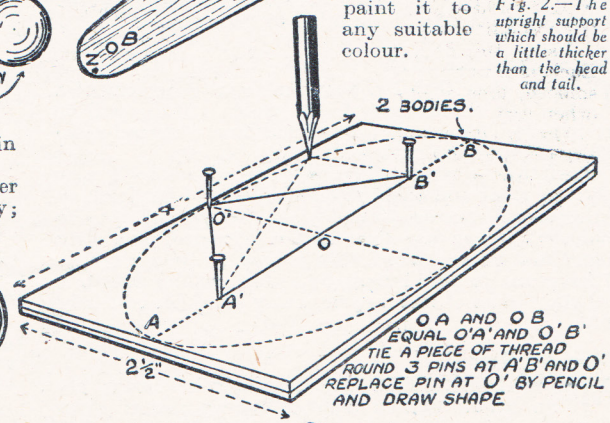


Fig. 2.—The upright support which should be a little thicker than the head and tail.



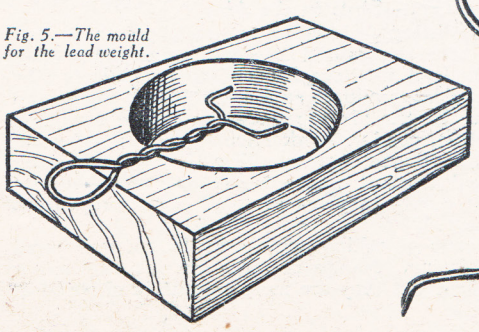


Fig. 5.—The mould for the lead weight.

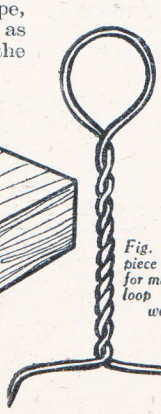


Fig. 6.—The piece of wire for making the loop on the weight.

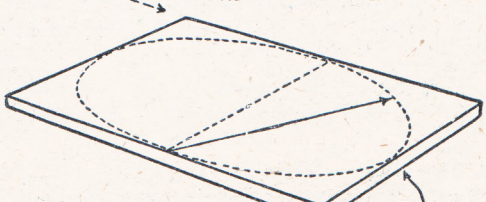
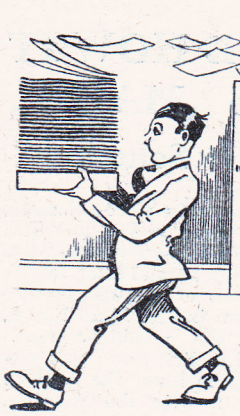


Fig. 1.—The method of drawing the oval for the body.



Random Jottings

INTERESTING PARAGRAPHS CONCERNING THE HAPPENINGS AND TOPICAL THOUGHTS OF THE WORLD OF HOBBIES.

BY THE EDITOR.

An Explanation.

HERE I am, squeezing in a few more lines on matters which somehow or another overflow from my weekly chat on another page. I hope in this new and brief feature not merely to fill an odd corner in the paper, but chiefly to keep you informed on things which happen in that vast world of hobbies in which both of us, reader and editor, are interested. Let me know whether you like this corner, please!

A Queer Museum.

IN a little room off Piccadilly is a very queer museum. The exhibits include a crumpled horn (cow) and a crumpled horn (deer), stuffed pheasants, partridge, a duck from Regent's Park and a swan, horse-shoes, stones and a selection of golf balls.

The exhibits are objects which have crashed into the wind-screens of motor-cars, and have been sent by grateful owners who might have been seriously injured if ordinary glass had been fitted to their cars.

Motor-Cycles for £15!

IT seems clear that Mr. Snowden's announcement of a 15s. tax on motor-cycles of under 150 c.c. will be responsible for a new type of machine. Already two 98 c.c. models are marketed.

Such motor-cycles will doubtless appeal to a new class of rider and their production should do much to bring about increased employment in the motor-cycle industry. They are thus to be welcomed, but they must not be compared with "proper" motor-cycles. I have just prepared a special article dealing with this "baby" class of motor-cycle, many of which cost only £15!

New Air Record.

MR. WALTER LEES and Mr. Frederick Brossy set up a new world's flight-endurance record when they landed at Jacksonville Beach, Florida, after being in the air for 84 hours 33 minutes without refuelling.

They have thus beaten, by more than nine hours, the record established recently by French airmen in North Africa.

A Three-Minute Rocket.

THE Inter-Planetary Society has carried out its first test at Berlin's rocket aerodrome.

This took the form of shooting a small test rocket 200 feet into the air to discover if constant combustion had been secured.

The test was successful, for when the rocket, after wobbling about for a time, descended, it rose again and pirouetted in eccentric hops about the field for three minutes.

The rocket consisted of twin tubes containing benzine and liquid oxygen, surmounted by a nose-cap to lessen air resistance when rising.

An "Eelex" Reduction.

THE "Eelex" Earth Bowl is now reduced in price from 5s. 6d. to 3s. 6d.

The earth bowl has advantages over any other types of earth inasmuch that the surface is greater, its shape enables it to bed down well, and there is little fear of any loss of contact with the earth. It is marketed by Messrs. J. J. Eastick and Sons.

By the way, in view of the fact that this firm chiefly advertises "Eelex" treble-duty terminals, it seems to be overlooked that they have available a comprehensive range of plugs and sockets.

These are available with six-coloured indicators, all arranged to take the same name-plates as on the terminals. All parts being inter-changeable.

Cartoon Drawing for Pleasure.

WITH reference to our article on this subject on page 387 of our issue of June 27th, it is interesting to note the keen interest among my readers in this particular subject. Lots of them write to me with the recommendation of their schoolmaster asking how they may learn drawing at home without having to attend classes. I always reply that they cannot do better than take one of the postal courses conducted by Percy V. Bradshaw, The Press Art School (Dept. H.S.2), Tudor Hall, Forest Hill, S.E., or The Commercial Art School, 12-13, Henrietta Street, Strand, W.C.2. Both of these courses I can personally recommend for they are both conducted on sound lines designed to produce rapid results from pupils who know very little of the art of drawing.

An Electrical Catalogue.

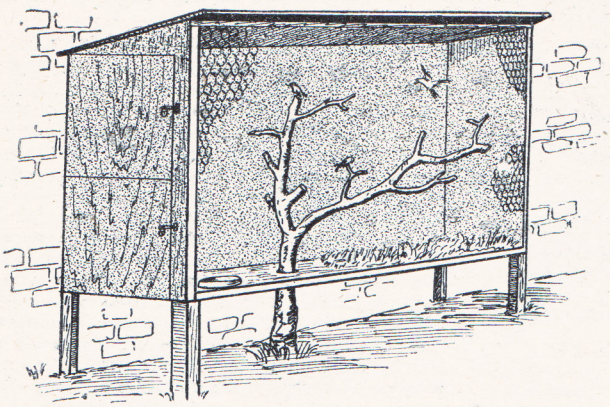
MR. L. WILKINSON, 8, City Road, Finsbury Square, London, E.C.1, has just produced an interesting list of electrical novelties, including motors and dynamos for all purposes. They are extremely reasonable in price. The list is available free to readers of HOBBIES from the address given.

Insects on Land—Birds in the Air.

THE prevailing fashion in nomenclature is to call cars after snakes and insects and aeroplanes after birds. On land we have hornets, gnats, midgets (the dictionary defines midget as a small midge) vipers and scorpions. In the air the names are more romantic. Eagle, falcon, condor, hawk have lent their names to famous Rolls-Royce engines. Now they are joined by kestrel and buzzard whose names are used—by Air Ministry request—in place of the former designations "F" and "H."

The system of calling engines by letters was found to be confusing. Names of birds are not only easier to remember, but they are more suggestive of speed in the air.

RUNNING AN ALL-BRITISH AVIARY



By visiting an aviary in one of the zoological gardens or parks, you will gain an excellent idea of the lines on which to build and run your own.

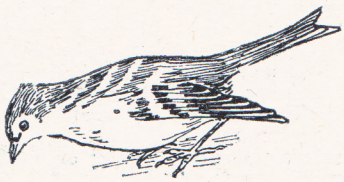
By R. Harrison

To those desirous of running an aviary it is always best to keep birds which have been acclimatised to their surroundings, and who will at once feel at home in captivity.

THIS is the best season of the year to start an aviary. Most of us, young and old, hanker after some living pet, and of all types cage birds cost the least, and are the easiest to keep. Foreign birds can be very interesting and amusing, but why not build up an aviary composed entirely of British birds? It is not so difficult as it sounds, there are few pursuits so fascinating, and our native birds are much hardier than any foreigners.

Now is the time when you can obtain healthy young birds at very small cost. Nestlings are becoming fully fledged, and these youngsters are much cheaper than year-old songsters. They will also grow up to become used to your presence among them.

The long evenings will also enable you to put the finishing touches to their home, and the weather is more kindly to them in their, as yet, strange surroundings. When you have had some experience of your charges—they all have ways and likes of their own—you can, after a summer and winter among them, try your hand at breeding.



A Chaffinch.

Suitable Accommodation.

If you have a spare attic or small room, or a dry outhouse, so much the better, as the cages can be housed in ideal conditions. If unable to build a suitable shed, don't despair, as large cages can be easily constructed.

Remember, it is useless to confine naturally wild birds in a small space, especially those cruelly tiny prisons one sees hanging outside houses even in these enlightened days. Plenty of space, air and sunlight mean that you can keep your charges in healthy and happy surroundings so that their condition will most nearly approach that of their wild state. As a consequence, antics, habits and song will be vastly more interesting and their life prolonged even beyond the natural span of their "free" brethren.

One large "cage" about four feet high, five feet wide and about three feet deep will house several varieties, or, if desired, two or three separate houses can be constructed, the total capacity of which should be somewhere near the above dimensions. Seasoned wood should be used for back, sides, top and bottom. One-inch wire mesh—not larger—or guards of the piano-wire type can be used for the front. If conveniently placed, one of the sides can be utilised as a door, preferably made in two halves, like a stable door. With wire guards a door can be purchased ready built into one of the sections, but the side door should be constructed in addition. A sloping roof is desirable if the cage is exposed to the weather.

Keep the Cage Healthy.

For health's sake, limewash the back and sides inside, and treat the outside with one of the cheap wood preservatives on the market. A sound limb of a tree, with several branches, gives a natural appearance, and can be fixed through a hole cut in the floor of the cage.

Plenty of fresh water in a shallow dish is most essential for drinking purposes and baths. A layer of turf, changed from time to time, can be profitably introduced.

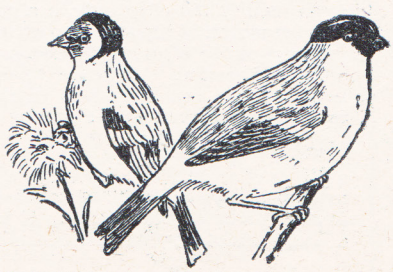
If you are able to visit an aviary in one of the zoological gardens or large parks, you will gain an excellent idea of the lines on which to build and run your own.

Now comes the question of occupants. You may think it difficult to procure them, but the following advice is all that is necessary to ensure success in this delightful occupation.

Acclimatised Birds.

Let it be said at once that it *is* disappointing to attempt to rear by human aid nestlings taken straight from their natural home. Rarely do they survive, and even if they do they feel the urge of the wild, and never feel at home. A better method is to obtain specimen English birds from any reliable fancier. They can be purchased quite cheaply, as the demand is more for foreign kinds. You will then have birds which have been acclimatised to their surroundings, and will at once be at home in your own cages.

You must first of all know exactly what to buy and what to avoid. Most emphatically, never keep skylarks in any sort of cage, however roomy. It is entirely unnatural, and they are consequently out of place. Not only that, but they do not "mix"



On the left is shown a Goldfinch and right a Bullfinch.

with other wild birds. The linnet used to be a popular cage-bird, but, remember, it is never at ease in captivity, not being an adaptable bird. You can obtain quite cheaply goldfinches, bullfinches, greenfinches, or bramblings, and these form an excellent nucleus for an aviary. These finches are mainly seed eaters, and the food which suits canaries is equally good for them.

The Tit Family.

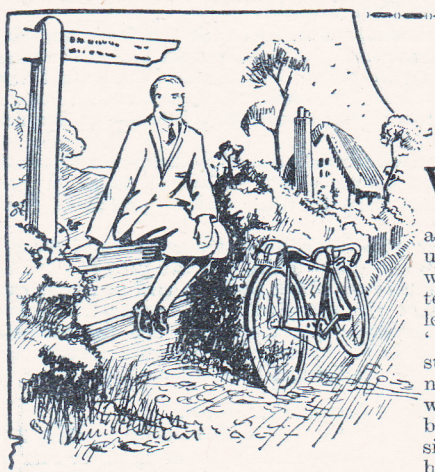
The tit family is another type which does well in captivity, and although their song is a matter of chirps and twitterings, their amusing antics and beautifully soft colourings make up for any lack of vocal powers. The familiar and acrobatic blue tit, the more sober Cole and Marsh tits, and the tiny long-tailed tit, will all live together in a cage of their own. Beware, however, of introducing a great tit (larger but similar in colouring to the blue or tomtit), as he is not particular about cracking the skulls of other birds, should he have a real or imaginary grievance against them.

The Blue-Tit is another type which does well in captivity.

Never include migrants such as blackcaps, warblers, whitethroats or the nightingale. Their natural winter home is in the sunny south, and we cannot hope for successful results from these summer visitors.

Breeding.

During this summer and winter you will become used to your feathered charges, and as British birds are more likely to survive hard weather than foreigners, you will be able, next spring, to commence breeding on your own account by starting from the egg itself. The most successful method is to include a pair of canaries in your aviary. These can usually be induced to build a nest, provided the materials—feathers, moss, lichen, and fine dried grass, are available. You can then substitute for the canaries' eggs one or two of those you wish to hatch. Success is then practically assured. Sometimes a pair of cage-reared birds can be persuaded to build their own nest, and nothing is more delightful than to be able to bring up families of this nature.



OUR CYCLISTS' CORNER

Conducted by F. T. Bidlake.

WHEN a bicycle makes a noise it is usually by way of protest at neglect. We on "silent steeds" are not troubled with problems of silencing exhausts from an engine, and I do not think any cyclist can have a feeling of pride in the bark of his machine. But all the same, it may as well be completely silenced when it rattles. A clanking mudguard is the worst noise, and most obvious, and yet it does not seem to irritate some riders sufficiently to make them cure it. Obviously, loose metal guards can be secured by tightening the screws, or, at worst, by packing the screws with small washers. But it often happens that the readily-detachable celluloid guards which are held by clips and straps jingle unpleasantly. It is not easy to make a new strap-hole to tighten them up, or to modify the clips, but in a great many cases a wooden match of the stouter sort will serve to tauten the grip of the clips on the edges of the guard, and a little "packing" of space where rattle occurs is better than a new strap-hole so close to an old one that it may spread into a slit by joining forces.

Handlebar Misfits.

Packing is a sorry business when you have to make bell clips or lamp brackets take hold of a misfit in handlebars or fork blades. It is better to choose a fitting accessory, but occasionally, packing has to be done. If necessary, it is best to wrap a piece of electrician's insulating tape round the tube, and trim it off, rather than use paper or ordinary tape. Use as much as the clip will possibly stand, and then screw the clip screw hard home.

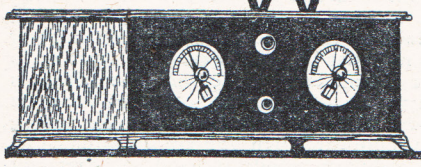
Admitting the necessity for such occasional makeshifts on the handle-bar, or when fitting control wire to the frame of a cycle, let us take warning never to be satisfied with "packed" clipping on the fork blades, whether to carry brake work, or what is even more formidable, a lamp. Scores of croppers have occurred through fittings of an insecure type slipping down the forks. Spokes are smashed, but what is worse is that the front wheel may be locked and the rider heavily thrown. Fork-blade lamp brackets should be permanent fittings, brazed on or absolutely firmly fixed to stand any possible bad shock or vibration.

A Locked Front Wheel.

Have you ever thought how much more serious it is to have a front wheel lock than a back one? You can experiment in proof of this—quietly by excessive braking. A locked back wheel will skid, as if in a skid-pan, but not necessarily side-slip. You have a good chance of a safe dismount, or regaining control. But a locked front wheel completely spoils the steering, and the unhindered back part of the bicycle tries to rise. Both evil tendencies operate unanimously with the aim of "throwing" the rider. Be very chary, therefore, in the matter of brake application to a front wheel. It will dither if kept straight when locked, which is bad enough, but it is positively certain to cause a spill if it is locked from revolving when askew, as in the act of turning. It is good to have really powerful brakes, but important to cultivate the application of them to a degree short of stopping the wheel. Hinder it, but never lock it.

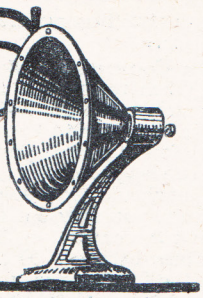
Our Wireless Expert will be pleased to help readers to solve their wireless problem.

WIRELESS



HOBBIES SHORT WAVE ADAPTER UNIT.

By "Hobbies" Radio Expert



QUITE a number of readers possessing ordinary receivers which have been built for the broadcast band often wish they were able to tune down to the short waves and pick up stations situated as far away as America or on the other side of the globe, Kenya, etc. These short waves seem to come in remarkably well, and, in response to many requests, the short wave unit here described may be connected to any ordinary receiver (provided it is not a Mains driven set), and which will enable reception to be carried out on the very shortest of wavelengths at present in use. The unit is quite cheap and the total expenditure need not exceed £1. No extra valve is needed, as will be explained later in the article.

The list of components should be studied, and practically any make of standard design may be used. The only point which requires careful attention is the method of connection used in the variable condensers. These must be fitted with "pigtail" connections if rustling noises are to be avoided when tuning in on the short waves. Most of the better makes of variable condenser now employ this method of connection, and we can recommend Formo, J.B., Polar, etc.

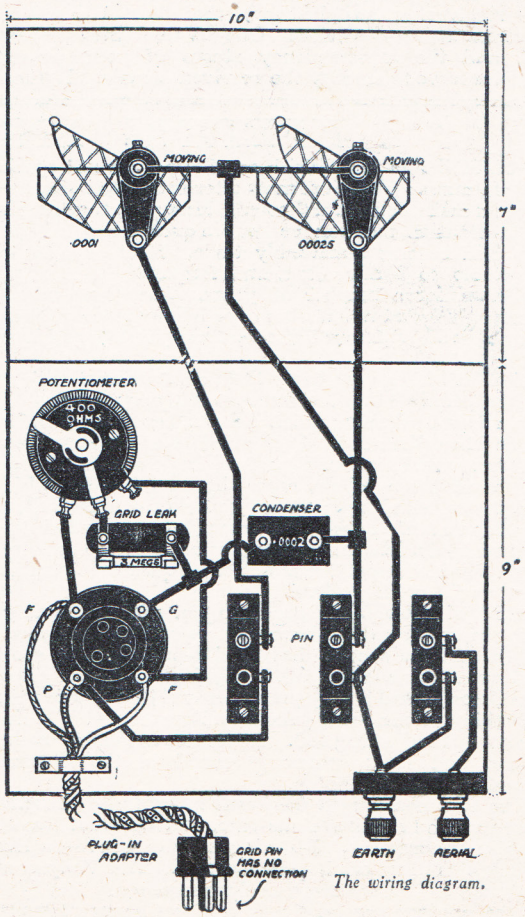
The Panel Lay-out.

Having obtained the various parts, proceed to mark out the panel, using as your guide the measurements given on the "wiring diagram." The exact size of the holes will depend, of course, on the particular make of component chosen. Mount up the condensers and then proceed to fix the remaining components to the baseboard. Pay particular attention to the coil-holders, allowing sufficient space between them to permit the largest of the coils to be safely inserted without touching its neighbour. The only two terminals required in this unit may be mounted on a spare piece of ebonite, or one of the Belling-Lee special terminal blocks may be purchased.

When everything is in its place you may proceed to wire up. This should be carried out with heavy gauge wire, say 16 or 18 bare copper, well spaced, and by the most direct method. Do not try to make this part of the work look neat by taking the leads a long way round with nice right-angle bends. Where short waves are concerned the leads must be as short and direct as possible. Do not let any wire run within ½in. of another unless it crosses at a dead right angle. Attention to this part of the work will be well repaid in efficient working. Note also that the moving vanes of

LIST OF COMPONENTS.

Panel 10in. by 7in.
Baseboard, 10in. by 8in. or 9in.
One .00025 mfd. Variable Condenser, with Slow Motion Dial.
One .0001 mfd. Variable Condenser with Slow Motion Dial.
3 Baseboard mounting Coil-holders.
One .0002 Fixed Condenser.
One 3 megohm Grid Leak and Holder.
One 400 ohm. Potentiometer for baseboard mounting.
One anti-microphonic Valve-holder.
One set of Short Wave Coils.
One plug-in Valve Adapter.
Flex, Wire, Screws, etc.
Two Terminals.



The wiring diagram.

both condensers are connected together and to Earth.

The Connecting Link.

When the unit is wired you will have to make the actual connecting link with your present receiver, and this will have to be made of such a length that it will comfortably reach your present Detector socket. Three single lengths of flex are required, and to avoid mistakes these should preferably be of different colours. Alternatively, you may cut three lengths of ordinary flex and bind the ends of each separate strand with a different coloured thread. These three strands are connected up in the following way. One strand to each of the Filament terminals of the valve-holder in the Unit, and to each filament pin of the Valve Adapter. The remaining strand from the Plate terminal of the valve-holder to the Plate pin of the Adapter. No connection whatever is made to the Grid Pin of this Adapter.

Having finished this part of the work, carefully check over all connections, and when you are quite sure no mistakes have been made you may proceed to connect it to your present receiver. This is quite a simple job. Take out the Detector valve of the set, and plug it into the valve-holder of the Short Wave Unit. The Valve Adapter is then plugged into the now empty valve-holder of your existing set. The Aerial and Earth leads should then be disconnected from your receiver, and taken to the two terminals on the Unit. If now the receiver is switched on, the Short Wave Unit becomes a very efficient One Valve Short Wave set, and the low-frequency stages of your present receiver serve to amplify the received signals. If there are two such stages, quite good Loud Speaker signals will be obtained.

Ensuring Maximum Results.

The following refinements may be mentioned to ensure maximum results in short wave work. If oscillation seems rather erratic, carefully adjust the position of the arm of the Potentiometer. If this does not seem to help matters, look at the H.F. choke in your existing receiver. This may not be good enough for short wave work, and you should therefore obtain one which is efficient on all waves. Tuning on the short waves is very critical, and you will have to adjust the tuning dial with much more care than you are accustomed to employ on the ordinary broadcast band. If you buy a complete set of short wave coils, try the effect of different sizes of coil in the left-hand, or aperiodic aerial, coil-holder. Generally speaking, this coil should be two sizes smaller than that used in the centre holder, and the right-hand, or reaction coil, should be of a size between these two.

For those who wish to make their own short wave coils, we would suggest making up a set having 2, 4, 6, 8, 10, 12, 14 and 16 turns of No. 16 gauge tinned copper wire, wound round a 3in. diameter former and then allowed to spring off. The four smaller sizes should be allowed to space themselves out with about ¼in. between the turns, and the four larger ones should have a space between turns equal to the thickness of the wire. The ends of the coils may be made fast to ordinary plug-in coil holders, and provided care is taken in handling them, they will be found to keep themselves quite rigid.

KEEPING ENGLISH LIZARDS

INCLUDED in our British reptiles are several species of lizards. These are most interesting little creatures and make delightful "pets." Moreover, they require little attention, and can be kept in quite a simple vivarium, and become remarkably tame. Most of these are adaptable to confinement, and frequently live in the vivarium for a number of years. The three species commonly found in Britain are as follows: Green Lizard (L. viridis), Viviparous Lizard (L. vivipara), Sand Lizard (L. agilis).

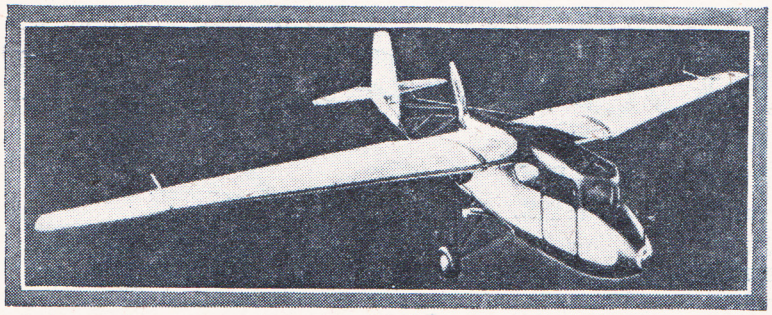
The latter is a very lively little creature, met with on heaths, sandy banks, commons and open spaces. It has a way of slipping quickly under herbage and other cover when disturbed. It is an adept at catching flies; it is larger and stockier than the Viviparous Lizard, and is a vivid green colour, especially on the sides, which are spotted with black; the underparts are bright yellow. The female is of a dark-brown colour, with rows of whitish centred spots. Common in many parts of the country, especially in Surrey. It is not so adaptable to confinement as the other kinds.

The Viviparous Lizard grows to 6in. or 7in., the colour being brown or reddish-brown above, and orange below; it is a variable species, having darker or lighter spots and sometimes a dark, yellow-edged band on the sides. The Green Lizard is very pretty, emerald green being the prevailing colour, with yellow underparts and a bluish throat. It has a long tail. Its haunts are chiefly rocky places, and it is commonly found in the Channel Islands.

The Common Lizard does well in captivity, but the Green species requires some care, and does not live so long in confinement. Lizards generally thrive on live flies, which they catch very cleverly. The Viviparous kind will eat earthworms, cockroaches, etc. The Wall Lizard, another species found in the Channel Islands, which shows a liking for old walls, is fond of garden worms. The Green Lizard is partial to insects of various kinds, snails, and earthworms.

You require no elaborate apparatus for keeping lizards. It is quite easy to make a suitable "house" for them. For the smaller species all you need is a box (wooden) about 2ft. by 18in. by 1ft. The box is placed on its side, with a glass pane in the front. This pane can be made to slide in and out at will. In the sides of the box bore a number of small holes and fasten over them small sheets of perforated zinc. This will afford ventilation. A box of the above size will comfortably "house" three or four specimens of the same species. If preferred, you can rig up a door made of perforated zinc in one side of the box, and have a fixed glass front. For the larger kinds the box should be 4ft. long, 2ft. high, and 2½ft. wide. It is unnecessary to paint the inside of the box. The bottom should be thickly strewn with sand and shingle, and a heap of moss placed in one corner. On this place a piece of virgin cork or something similar to afford the reptiles a retreat. A small tree-branch is also a useful addition. Remember that lizards are lovers of the sun, so that the vivarium should be placed in a sunny spot. A small saucer of water should always be kept inside the box.

All the lizards are very inactive during cold weather, but extremely lively on warm, sunny days. When hunting lizards on the sandy banks and heaths the better way of catching them is by means of a thread-noose attached to a thin, pliant wand, such as a willow slip or hazel twig. When handled in their lively condition, lizards are apt to make a quick escape or, on occasion, will shed their tails and so lose much of their "beauty" of form. We have found it advisable to keep each species separate, and, if keeping two or more kinds, to have a separate vivarium for each.



If all goes well, you may some day see the air full of these "aerial flivvers." The model, pronuced by Henry Ford's chief aircraft designer, weighs less than 1,000 pounds and is small enough to land on a tennis court. It is of 75 horsepower.

MODEL AEROPLANE TOPICS

By Our Air Expert

Use Standard Materials.

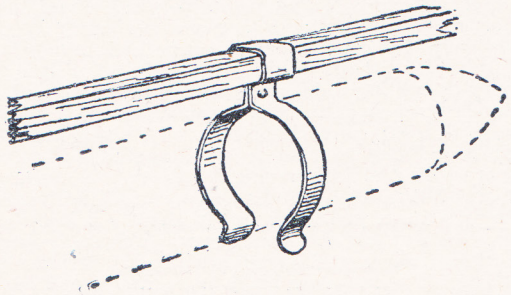
IN planning a model aeroplane it is wise to have by you a catalogue of standard parts, if you are not able to make the various pieces yourself. An inspection of most manufacturers' catalogues will show you that various sizes of wood have been standardised, and it will save you quite a lot of work if you keep to those sizes. These catalogues, too, illustrate a number of standard metal fittings which solve quite a number of difficulties in construction. These have been designed to fit on to the standard sections of wood, which is an added reason why standard sections should be used.

Detachable Elastic Motors.

Apropos my note last week concerning hollow spars made from paper, the sketch below shows how these may be attached to the mainspar. A clip something like a bicycle pump clip is used to grip the tube. This tube, of course, should contain the elastic motor and carry the propeller and its bearings.

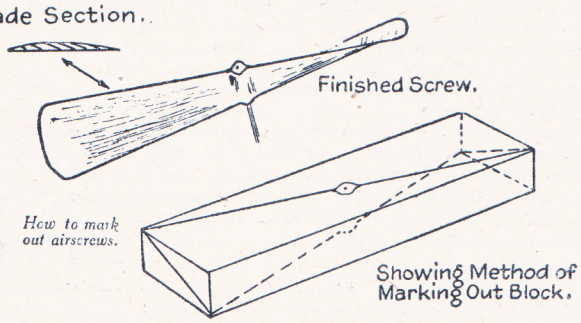
Carving Model Airscrews.

The second diagram on this page shows how helical



This diagram shows how a tube may be attached to the motor-rod. This tube is used to enclose the elastic.

airscrews may be carved. The block of wood has two diagonal lines drawn on it, one on each face. The boss is marked round the centre, and a hole drilled through for balancing purposes. Carefully chip away the wood to the shape of the finished screw, making sure that both blades are of the same weight, so that they balance horizontally when poised on a piece of piano wire passed through the centre hole. This type of screw should only be used on twin screw models.



A Model Air Force.

The Model Aircraft Club (I suggest that they amend their initials to M.A.C. At present the initials used are T.M.A.C., the letter T standing for *The*, which is never used in club titles. The R.A.C. is not known as T.R.A.C.) is forging ahead by leaps and bounds. In a chat the other day with its energetic secretary, Mr. A. E. Jones, who radiates enthusiasm on all matters relating to model aeroplanes, I learned that quite recently it has added some hundreds of members to its ranks. I can thoroughly recommend this club, which is run on sound lines and the subscription to which is purely nominal. It seems to me that by sheer force of numbers this club will pass from its state of being a controlled body to the controlling body itself. The tail cannot wag the dog. This club has a national outlook, which is what is wanted for a controlling body.

How to Make Corks Airtight.

CHEMICALS contained in corked bottles are often found to decompose, although the bottle is tightly corked. This is because the corks are not airtight. To make them airtight, immerse them in melted paraffin wax, of which candles are made. After immersion remove the corks and allow to cool.

TWO PRACTICAL HINTS

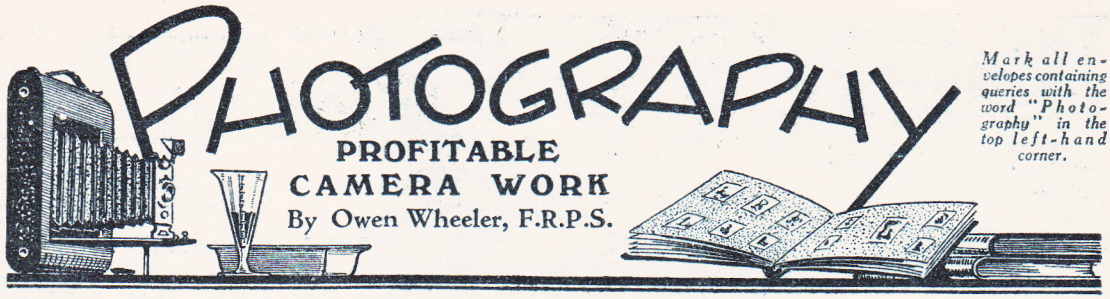
A certain amount of wax will be sucked into the crevices of the corks, thus making them airtight.

Labels on bottles are also preserved by painting them with hot wax. Thus treated, they will resist the action of most acids.

A Hint for the Photographer.

METHYLATED spirits is often used in photography for drying negatives, the only drawback being that the methylated spirits itself soon becomes water-laden.

To dry the methylated spirits itself, put a few strips of gelatine in it. After a short while the gelatine will absorb all the water.



Mark all envelopes containing queries with the word "Photography" in the top left-hand corner.

IT is quite likely that this article will be disappointing to *some* readers of HOBBIES, for there are, and always will be, a good many who think that, with a few hints, they ought to be able to earn quite a decent amount of pocket-money with little roll-film cameras costing not many shillings and fitted, often, with very inferior lenses. They do not stop to consider that, if it were as easy as this to make photography pay, half the schoolboys in the kingdom would be jingling spare half-crowns in their pockets instead of wondering where the price of their next spool is coming from. There *is* a little to be made now and again out of a camera by a boy who knows how to use it, and has, or can make, opportunities in the matter of subjects. But the chances are few and far between, and the reward of success usually far below expectations. With this discouraging preface, let us glance at the possibilities, and give what practical advice can fairly be given on a subject about which quite a number of grown-up people have very mistaken ideas.

News Interest.

The most saleable kind of photographs are those which are interesting because they illustrate something which is *news*, and that is just the kind which the average amateur very seldom indeed has any chance of getting, or, at any rate, disposing of. For any youngster to think of taking up what is usually called Press Photography as a regular thing would be mere folly. It needs an expensive outfit, much skill and experience, and very special qualities, and not all professionals by any means succeed at it. Nor is it any use for an amateur, in whose neighbourhood something interesting happens of which a previous announcement has been made, to attend with his camera in the hope of making a paying job of it. If the event is of any news importance, arrangements will have been made by the papers, or by agencies, or by "free-lance" Press photographers, to cover it, and blocks will probably have been made before the amateur has developed his plates or films. But sometimes, even a youngster may happen to be the sole camera-carrying witness of a big and startling incident of which the papers are certain to want all the news they can get. If he manages to get a snap or two, or half-a-dozen snaps of what has happened, it is possible that, if he goes about it the right way, he may turn his opportunity to good and profitable account.

What to Do.

Assuming that he is a novice, his best course, if a local professional photographer is within reach, is to go straight to him with the exposed, but undeveloped, plates or films, and ask him if he will take them over on a "fifty-fifty" basis, i.e., giving you half of anything he makes out of them. He will know far better what to do than you, and, if he succeeds in planting your picture or pictures with several papers, or is in touch with a good agency, you may do quite well out of the deal. If you cannot get help of this kind, and have a shilling or two to speculate with, I should advise you to make a packet of your undeveloped plates or films, enclosing a few lines stating the incident to which they refer, and addressing the packet (marked "Urgent") to the art editor of one of the many papers that publish news photographs. Then, if the incident was really an important one, and you have been the solitary recorder of it, take your packet to the nearest railway station and despatch it as a "train letter," taking care to mention the time of the train. Finally, wire or 'phone the art editor that you have sent him by such-and-such train undeveloped plates or films of such-and-such a happening which you alone were able to photograph. Of course, if you know all the ropes, you can do better than this, but then, you would not be a novice, and a novice cannot expect to score like an expert. If your photographs are pretty good, and of real news interest, you may be sure of fair treatment from the right kind of paper.

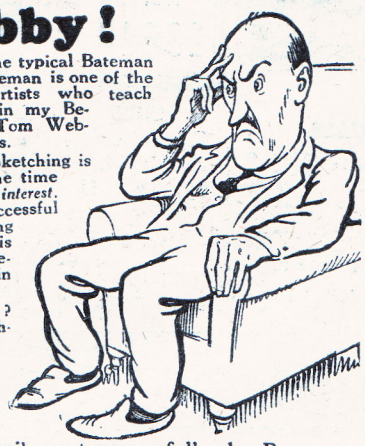
Other Possibilities.

It is only once in a blue moon that you will get a chance like this, and even then, it may come to nothing in the way of hard cash. When it comes to trying to sell photographs that have nothing to do with news, the first problem is to find a possible market, and only too often the search proves long and wearisome. It is quite likely that a photograph may be both interesting and saleable without being "newsy," but it has to be very interesting to others besides yourself, and more particularly to an editor who knows a great deal better than you what suits those who buy his paper. A fairly sound line to take is to study the illustrated papers which deal with various kinds of sport, country life, and Nature study, and to ask yourself fairly and squarely whether you think that in any of the branches dealt with you can do something which is really fresh and attractive, as well as up to the mark technically speaking. You are more likely to succeed if you have a hobby of your own apart from photography, or if you use your camera chiefly in some special direction, such as photographing animals, flowers, insects, or natural phenomena—lightning flashes, for instance. But it must be good, clean work, for few editors will look twice at a muddy print from a wrongly exposed negative, even if the subject is out of the common.

Do Not Aim Too High.

Any idea of making money out of photographs of sports is usually futile, partly because as a rule special and costly apparatus is needed, and partly because there are so many real experts engaged in this kind of work that a comparative novice has little or no chance. But he may get a look in if he aims low at a modest mark.

The man without a Hobby!



This aptly describes the typical Bateman Sketch alongside. Bateman is one of the famous Humorous Artists who teach Humorous Sketching in my Beginner's Course with Tom Webster, "Poy," and others.

The great thing about Sketching is that first, last and all the time *it is a Hobby of absorbing interest.* Practically every successful Artist started Sketching for the love of it. It is *still* a Hobby with Bateman, you can see that in every line he draws.

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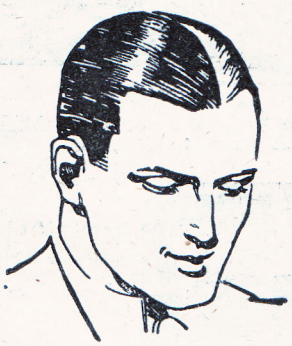

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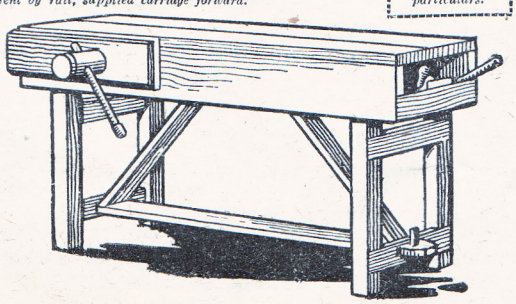

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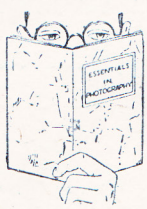

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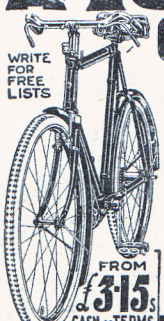

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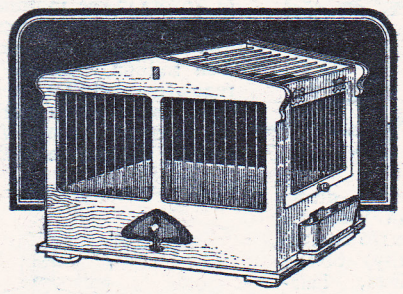
BIRD CAGE



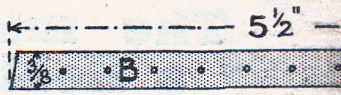
MATERIALS.

A parcel of wood (beech and plywood) for all the parts, and four suitable (No. 20) Feet costs 4s. 6d. (postage 9d.). A bundle of straight brass wire (No. 6152) supplied for 1s. 3d., pair of hinges (5308) and a catch (5376) and pair of feed glasses (6140) for 9d.

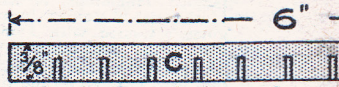
A complete parcel of all requirements sent post free for 7s. 6d.

SIZE

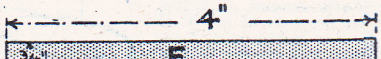
13½in. LONG.
7in. WIDE.
9¾in. HIGH.



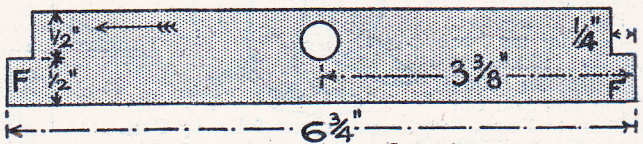
Fillet for roof wires, left. Cut two. Bore holes for roof wires where sh



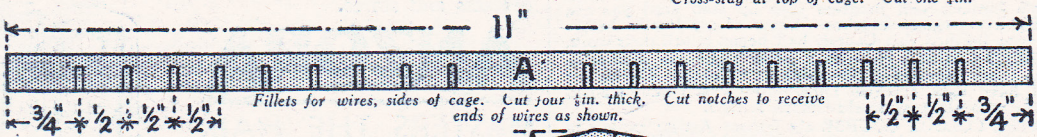
Fillets for wires, ends of cage. Cut two cut notches as shown.



Fillets for sides of door. Cut two ⅛in.



Cross-stay at top of cage. Cut one ⅛in.



Fillets for wires, sides of cage. Cut four ⅛in. thick. Cut notches to receive ends of wires as shown.

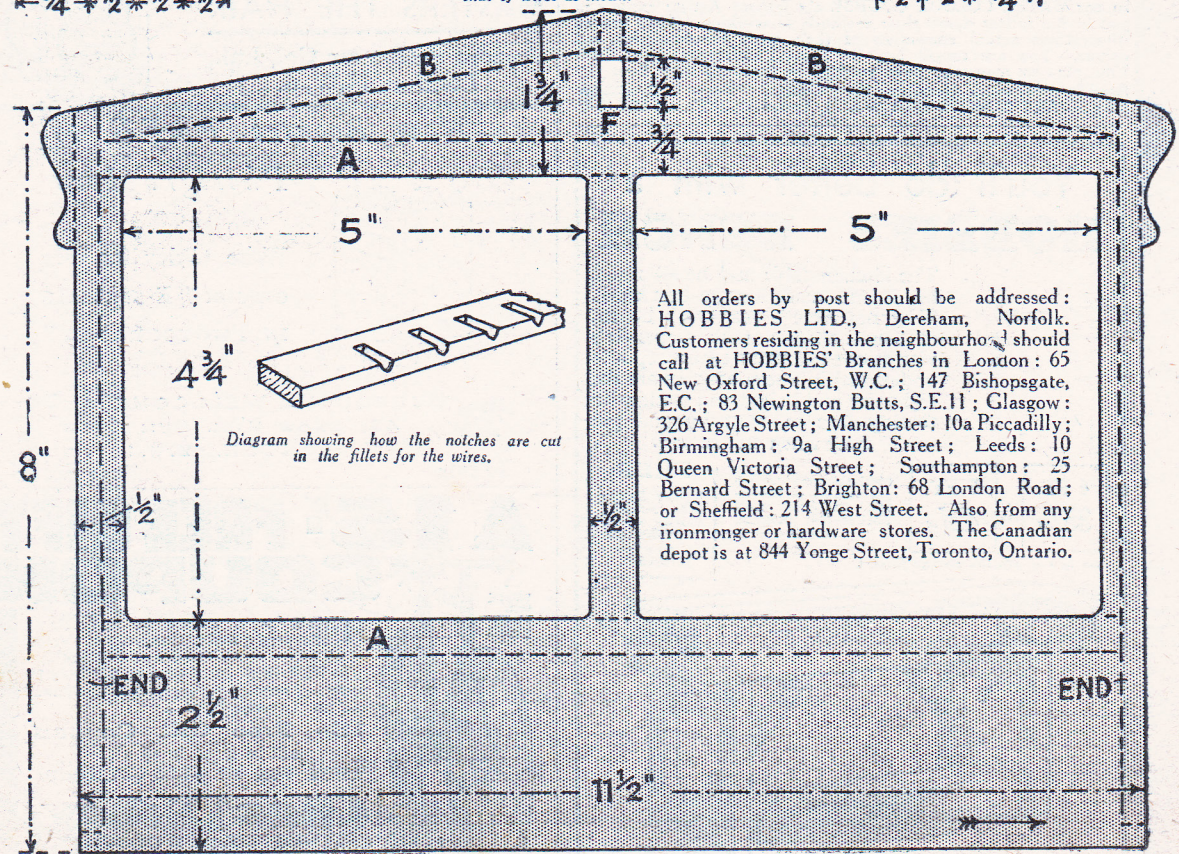


Diagram showing how the notches are cut in the fillets for the wires.

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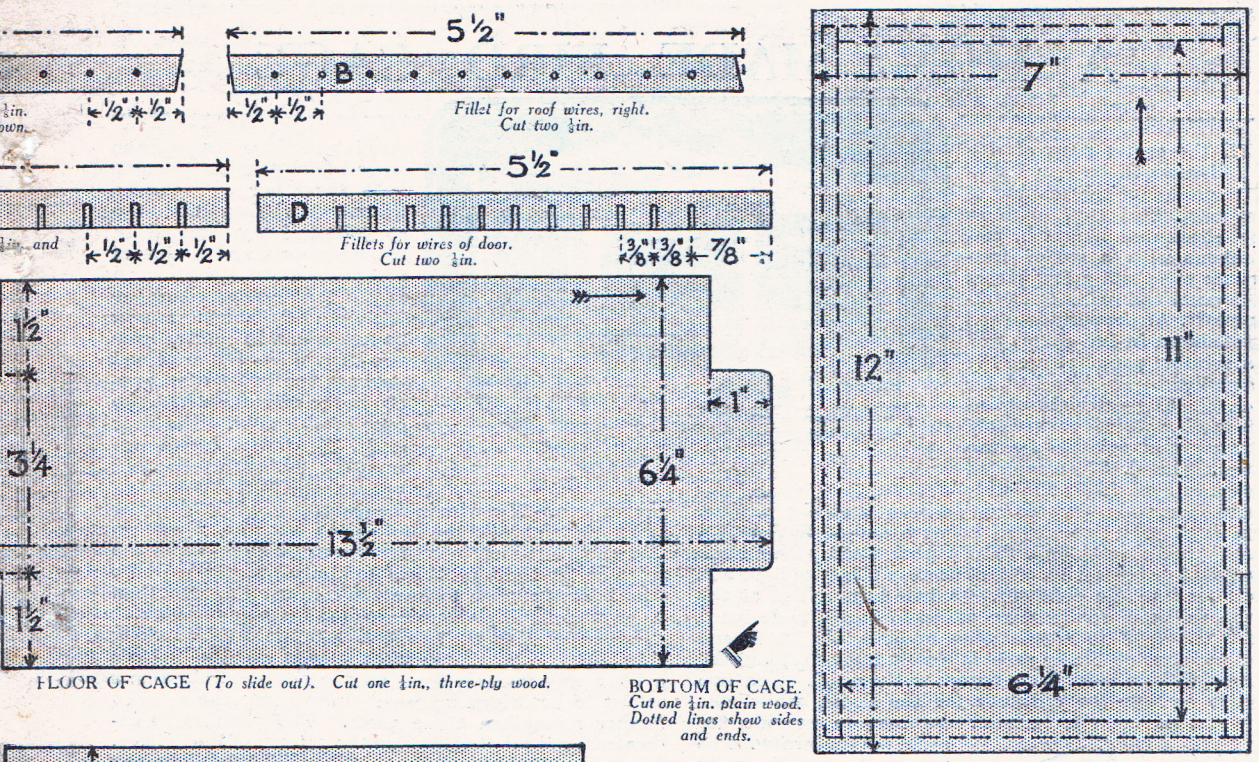
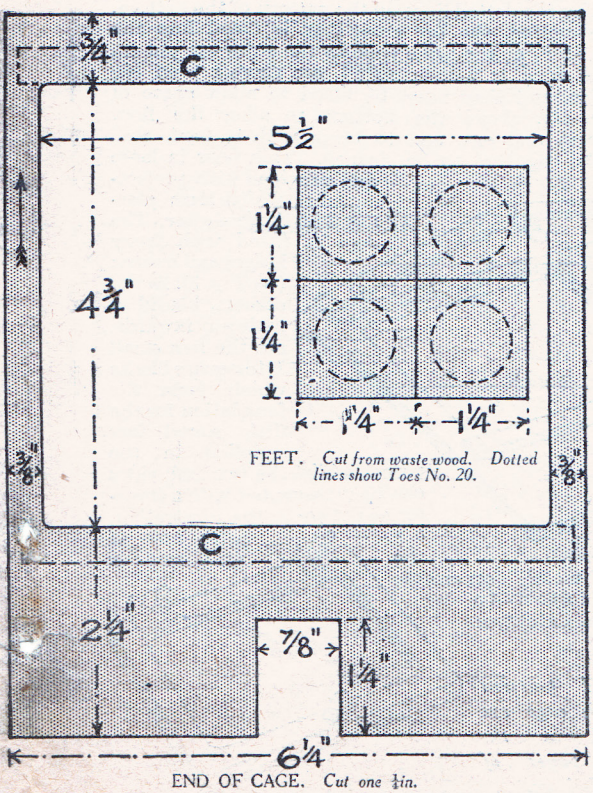
SIDES OF CAGE. *Cut two ⅛in. thick.*



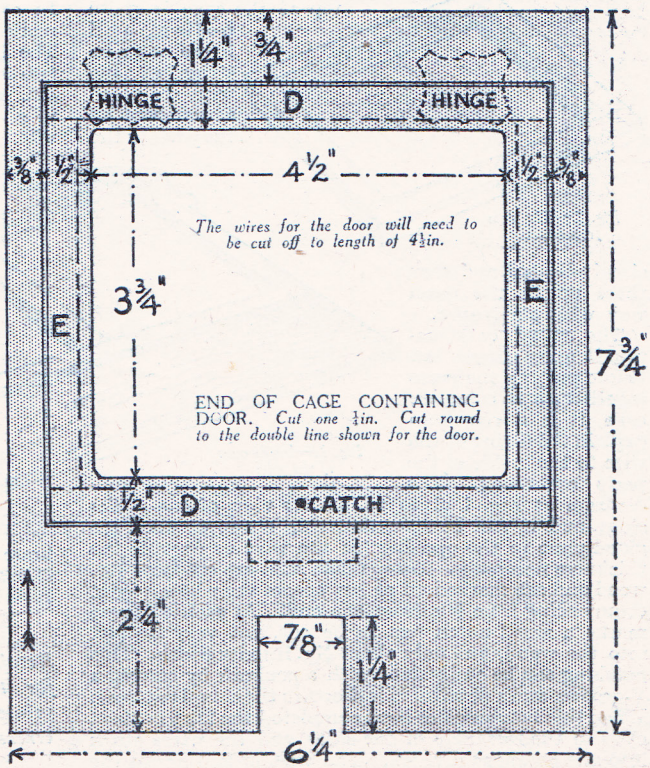
FLOOR OF CAGE *(To slide out). Cut one ¼in., three-ply wood.*

BOTTOM OF CAGE. *Cut one ¼in. plain wood. Dotted lines show sides and ends.*

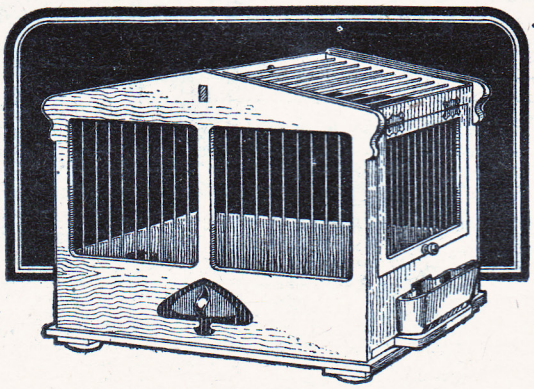


FEET. *Cut from waste wood. Dotted lines show Toes No. 20.*

END OF CAGE. *Cut one ¼in.*



A HOME-MADE BIRD CAGE



IN the centre pages of this issue will be found diagrams for the making of a small bird cage, such as is illustrated herewith, and anyone with a set of fretwork tools and a few pieces of wood and wire can complete it. All the parts required are shown in full detail, and a suitable parcel of wood is supplied by Hobbies Ltd. for 4s. 6d. The material supplied is beech, as this is particularly strong and suitable for the work in hand. The completed cage is 9¾in. high, 7in. wide and 13in. long, and, as can be seen from the picture, is fitted with two hinged doors, a sliding floor and a feed glass at each end. The cage is fitted with a large amount of brass wire, so that there is plenty of light and air for its little occupant. A hole is provided at the top, so that it can be hung, whilst feet are also designed for the cage to stand. The number, thickness and dimensions of all the parts is clearly indicated, and the first job is to mark them out on to the wood. The two ends contain the openings for the doors, whilst the two sides have rectangular openings to provide the space for the wiring. The top of the cage is quite hollow, and here again strips of the wire are fitted across. Cut all the parts to the sizes indicated, and clean them up in the usual way with glasspaper.

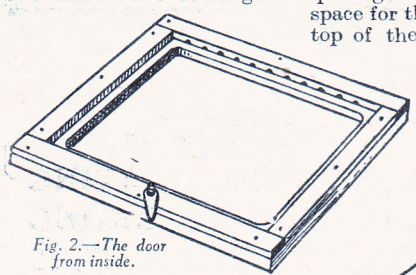


Fig. 2.—The door from inside.

The actual construction is quite simple, but before putting the parts together as a complete cage, it is advisable to explain the fitting of the wire to the inside of the parts concerned. The diagram at Fig. 1 gives an interior view of one of the sides, and it will be seen that thin strips of wood are glued close to the opening for the wire to provide the thickness necessary. These fillets A.A. are cut from ⅛in. wood and are marked off at ½in. spaces the whole length, commencing from ¾in. from one end. At each of these marks a small notch has to be cut, not very deeply, into the wood, and only about ¼in. into its width. This notching can be easily done with a penknife by cutting a V-groove, and a detail of it is shown in the actual patterns. When this notching has been completed the fillet is glued close to the rectangle of the sides, and the wires stuck into the notches provided. The wire is laid across the opening in the sides, and the second fillet glued in place to hold the other end of the wires. The door and the opposite end are treated in the same way, and a view of the inside of the door is shown at Fig. 2 to illustrate how the fillets are fitted here. It will be noted that in this instance two short fillets (E) are glued between the two longer ones (D) and to come flush with the edge of the door. The door itself, of course, is cut out from the pattern of the end between the lines marked on the pattern. The wire in the opposite end is held by the two fillets (C), whilst the roof wiring is held by the fillets (B). The last-mentioned fillets can be glued on to the sides before these parts are put in place, for here the wire is long enough to be stuck into one end, and then to be bent slightly and sprung into the hole opposite.

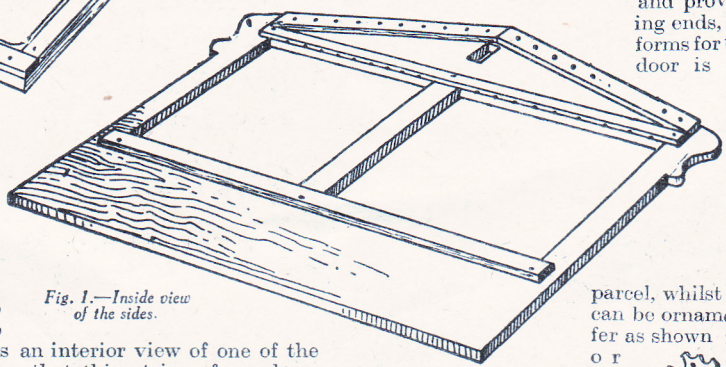


Fig. 1.—Inside view of the sides.

In construction, the two ends fit between the two long sides. The whole framework stands on the bottom a little way inwards from all the edges. This allows screws to be driven up from beneath into the sides to further strengthen these parts. The position is indicated by the dotted lines on the pattern of the bottom. In constructing, the top cross stay is fitted into the mortise at F, at the same time as the sides are put in. The two ends, it will be noted, are shorter than the two sides, and they must be fitted to allow space of ¼in. or ⅜in. above the bottom, to allow the floor to slide in and out, and to bring with it food, etc., when the cage has to be cleaned. This floor is loose and provided with projecting ends, which form platforms for the feed glass. The door is fitted with fancy hinges and a catch (see Fig. 3). At the corners, placed a little way inwards, are the four small 1¼in. square blocks which form the foundation for the little round feet supplied in the parcel, whilst the two long sides can be ornamented with a transfer as shown in the illustration, or with any of the small wood or brass metal ornaments illustrated in Hobbies Catalogue.

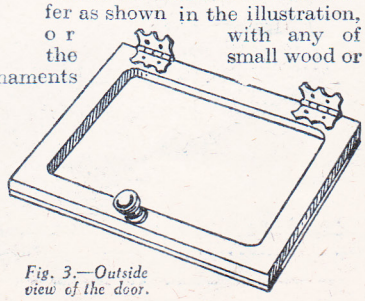


Fig. 3.—Outside view of the door.

Detailed patterns for this cage are printed in the centre pages of this issue.

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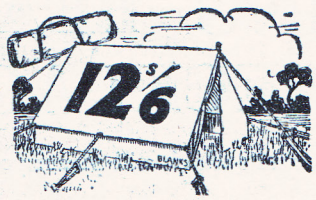

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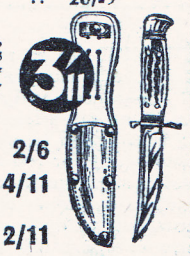

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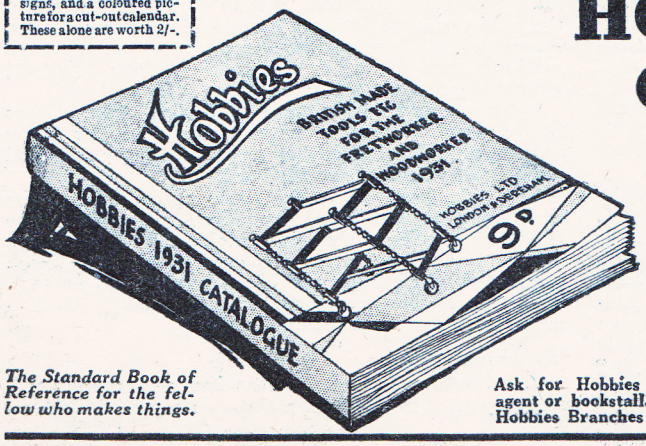
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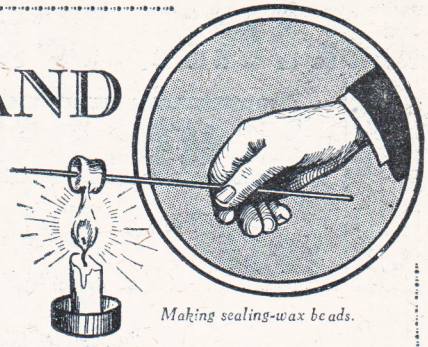
MAKING BEADS AND NECKLACES

A hobby giving results which will please your lady friends

By B. Debenham



Making sealing-wax beads.

THERE are so many forms of decoration to which beads can be adapted—and the creative mind can constantly devise new ones. Necklaces alone can fill all one's leisure hours, for no two necklaces in the world need be alike, and should you have one that is too heavy, or too long, or too colourful, it is the simplest matter to alter it to suit your taste. Stringing beads is a simple operation, but it is just as well to know how to do it so that they shall last. Nothing is more exasperating than to hear a cascade of beads clattering on the floor, when one is ready to go out and there isn't a moment to spare to gather them together.

Linen bead thread is best for most beads. It should be used double, so cut a length five times the desired length of the necklace so as to allow a little margin. The thread must be waxed, but this is an easy matter; simply draw it through a stump of candle several times. Bees-wax may be used, but a candle-end is just as good.

Threading Small Beads.

Some beads are bored so finely that no ordinary needle with a large enough eye for the thread will go through them. For these, a special bead needle must be obtained; they are to be had in several sizes with special elongated eyes, but if any difficulty is experienced in getting them, a fine wire will answer the purpose. An effective way of using large beads is to thread them on several strands and put tiny beads on every strand between them, according to the distance you desire them apart. This gives the appearance of chain-mounting. Jade, with tiny pink pearls, or gold or silver beads, looks especially charming, especially if you design a pendant of the jade hanging from little chains of varying lengths, so as to make a pointed pattern.

A simple and effective necklace made from small beads.

Pendants or drops must always be made with the necklace, so that all joins and knots may be avoided. The method is simple; thread enough small beads to make the length you wish, then the large one and one small, then pass the needle back through the large bead and all the small ones for the length of the pendant, and pull it tight; make as many of these as you wish and continue the necklace. This, of course, is for a centre pendant. If you prefer drops at varying distances, beginning at the side of the necklace, you must space them accordingly, and always remember to count the beads carefully.

There are innumerable ways of threading and arranging necklaces, and the worker with an imagination can evolve any amount of original ornaments. Large beads will cover joins where the strands meet and make the necklace look very professional.

Making Sealing-wax Beads.

This is an interesting pastime, and, for the novice, full of unexpected and surprising results. Sealing-wax makers revel in colour, and it is possible to get almost every shade, as well as bronzes and silver. Very few materials are necessary; as many small sticks of sealing-wax as you require colours, a tiny spirit lamp, some knitting needles and a scalpel or a penknife. Cut up the wax into even pieces according to the size of beads you want; you can do this with a knife if you heat it. Then thoroughly heat a knitting needle and press it down on to a piece of wax until it is almost buried in it; leave it a few minutes until the wax has hardened slightly round the needle, then twirl it over the flame of the spirit lamp until it is soft. Don't let it get too hot, or it will drip; have handy a cup of cold water to moisten your fingers, and as soon as you can bear it, mould the bead into shape, being careful to keep the needle in the exact centre. The penknife should be wet and used to carve the bead into shape, if you have in mind a square or oblong design. Run the bead through the flame again to remove all markings, and put it into cold water. When it has set, wipe it dry and put a high polish on it by rubbing.

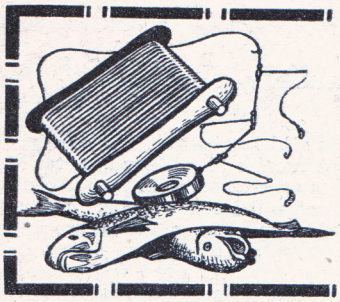
Variety may be introduced by adding other colours to the bead. Beautiful natural effects are made by heating a stick of a darker or contrasting shade and dabbing tiny smudges on the bead.

Twirl the bead above the flame again, so that the smudges melt and blend themselves. You can have encircling streaks so that your necklace will look like a string of lollipops, or, in the case of a square bead, the design and colours can be so arranged to make it appear a semi-precious stone. Always finish by hardening in cold water and then polishing.

Wax Enamelling.

The bead worker who makes her own enamel will feel very scientific, and yet it is quite simple, but it takes

(*Continued on page* 452.)



Holiday Sea Fishing

SOME PRACTICAL ADVICE.

NO matter at what seaside resort you may be spending your holidays, there are to be found plenty of nice little spots where fish may be hooked from the beach. Sea fishing is fine sport, and if you are lucky enough to hook a monster, then a real thrill is bound to be yours. Fishing from the beach need not be an expensive item; a few extra shillings in your pocket will well see you through with necessary tackle.

The most simple form of sea fishing is made with a length of line on one end of which is fastened a weight and one or more hooks. A visit to the angling supply shop in the place you are spending your holidays will soon convince you that an expensive rod equipment is not really necessary. Before making a purchase of the lines just take a general survey of the coast and nature of the sands when the tide is out. If the coast is inclined to be flat and sandy, then an excellent arrangement for the weight and hooks is illustrated by Fig. 1 of the accompanying illustrations. A good long line is required to enable you to throw the hooks well out to sea.

Another arrangement is indicated by Fig. 2, where we have two hooks at the extreme end of the line with the weight a short distance up. This is a particularly good idea if you are making a catch for whiting.

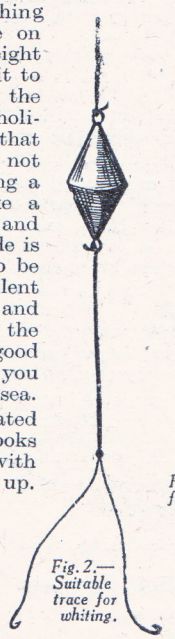


Fig. 2.—Suitable trace for whiting.

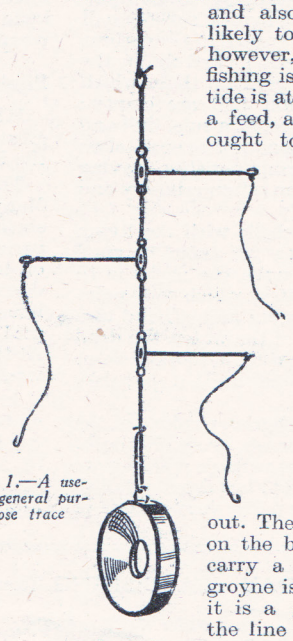


Fig. 1.—A useful general purpose trace

Bait for the Hooks.

Having set yourself up with a line, as shown at Fig. 1 and Fig. 2, you are now confronted with the all-important subject of bait for the hooks. It is, of course, little use fixing pieces of bread or wheat on the hooks as you do for fresh-water fishing in the calm waters of the river. Remember that when the sea fish come in to feed they mean to have a good one, and you must put something real nice on the hooks to tempt them.

Obtain a few mussels, rag-worms, green crab, and shrimps, and try these alternately on the hooks. If you find difficulty in obtaining these baits—which, of course, you should not—get in touch with some of the old-time fishermen you will see by you, and they, as a rule, will give you a supply for a matter of a few pence. In any case it is quite a good plan to get in touch with these gentlemen, as you may often get to know the best times to fish in some particular spot, and also the kind of fish one is most likely to catch. It may safely be said, however, the most favourable time for fishing is when the tide is in. When the tide is at its highest the fish will be in for a feed, and should the day be ideal, you ought to get some real sport when the tide begins to turn outwards, since the fish will then grab at any food which looks tempting.

Casting the Line.

The hooks having been baited and the state of tide at its best, all is ready for casting the line out to sea. This is somewhat tricky at first, but after a little practice you will soon overcome any difficulty in this direction. First see that all is clear, and then take hold of the line about two yards from the hooks and give about two good swings and cast well out. The slack line may be nicely arranged on the beach, and the weight will then carry a good deal of it to sea. If a groyne is near by where you are fishing, it is a good plan to hook the end of the line on to it in order to prevent the whole being thrown out. Failing this, you may twist the end round a stout stick well pushed into the beach. When the line is cast, the weight will settle down on the sand and the line will be slack, as clearly seen in view Fig. 3. Now it is a great mistake to allow any slack in the line, for you will not be able to detect the bite of a fish, and, of course, this is most important. Carefully draw back the

(*Continued on page* 452.)

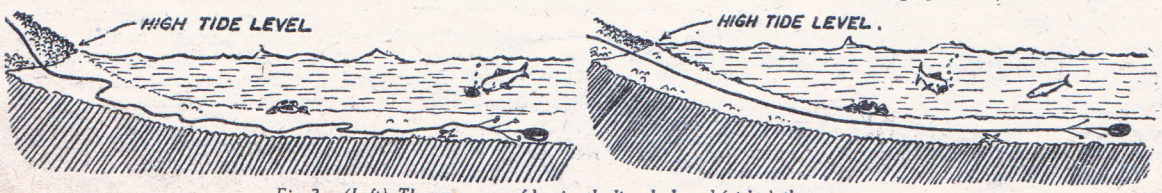


Fig. 3.—(Left) The wrong way of leaving the line slack, and (right,) the correct way

MAKING BEADS AND NECKLACES (*continued from page* 450.)

time and patience. Break the sealing-wax into tiny pieces and put each colour into separate containers, which must have air-tight covers; greaseproof paper or oiled silk will do. Just cover the wax with methylated spirit and fasten the covers tightly. Then forget all about them for a whole day, and when you remove the covers you will find the wax has dissolved. This enamel can be used for almost every type of bead.

Glass beads, in particular, respond exquisitely to treatment with enamel. Dennison's stock a clear, amber wax enamel, which makes an ideal outer coating after the design has been formed by your home-made enamels.

Patterns can be produced in thousands with enamels. Cheap wooden beads so treated can be made to look like priceless gems, especially if deft touches of gold, bronze or silver are introduced here and there.

Perfumed Paste.

Barbola paste, which is sold in air-tight tins, can be used for covering wooden moulds if preferred, instead of making enamel. It has an advantage in that it can be perfumed, and the scent will last for years. Attar of roses, orris root, oil of lavender or geranium are all suitable, and only a few drops are necessary. A blend of essences would make the jewellery most distinctive. Of course, a perfumed necklace must not be sealed with varnish or wax, but it can be polished with olive oil, to which a small quantity of concentrated perfume has been added.

COLLECTING SHELLS AND HOW TO PRESERVE THEM.

WHEN on your summer holidays by the sea you will probably be tempted to make a collection of shells. Most people are interested in the various beautiful and often quaint specimens picked up on the rocks or the shore. Usually they pick up those which have been discarded by the tenant and are empty; but you will find that these shells are, as a rule, dull and chalky looking, for as soon as the tenant dies or is taken out of its abode, the outside epidermis perishes, leaving the shell with a look of deterioration, often crumbly and chalky.

The best way is to collect the shells with the living creature within; you are sure to get them in good condition then. The way to preserve the shells is to first plunge them into boiling water, which will painlessly and instantly destroy the living animal, and also clean the shell. After taking out of the water, the dead body must be carefully removed with a tooth-pick or a pin, and the interior washed out and, if possible, wiped clean of all foreign matter.

Dirt can be removed from the whorls or spines of the shells by a small student's paint-brush, or an old tooth-brush. A very slight coat of copal varnish will obviate dullness; or in the case of a shell that has dried a dullish white, you can give it a polish by using your sister's or mother's manicure powder, if they will allow you. A little manicure powder brightens up a dull shell wonderfully.

Bivalves.

When treating bivalves (those shells in two parts), great care should be exercised in order to avoid breaking the ligaments or hinges.

There are several ways of arranging your specimens. Many people decorate their backyards and gardens with shells they bring back from the seaside, but they soon perish. If you intend to keep them, they can be glued on to stout white cards, writing under each specimen a description of it, and where found. Another way is to house the shells in little lidless boxes made from plain post cards, pasted down on a piece of white cardboard. At the bottom of each compartment place a little cotton wool for the shell to rest upon.

Interesting collections of the shells of freshwater snails and molluscs, land snails, as well as seashore specimens can be secured and preserved, forming an unusual cabinet of natural history specimens. A cheap handbook on conchology will be of assistance in helping you to identify and classify the shells.

HOLIDAY SEA FISHING (*continued from page* 451.)

line so as it becomes well straightened, as illustrated by view B, Fig. 3.

When the Fish Bite.

Considering the day to be ideal for fishing, you will very soon be feeling something pulling at the hooks. Many make a great mistake in striking too quickly when they feel a bite; just wait a moment until you feel a real tug at the line and then strike sharply in an upward direction. You will soon feel if you have brought off a catch, and if so, it is a simple matter to play the fish to the beach. If you feel you have hooked a big fish, just let him have his own way for a few minutes, and after he gets a little tired it will be more simple to play him out.

In addition to the ordinary cast lines mentioned,

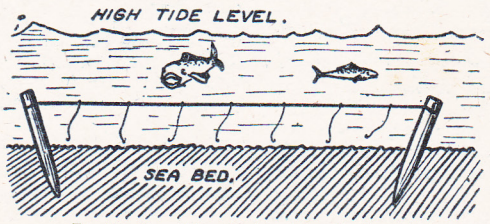


Fig. 4.—Ground line fixed in the sand at low tide.

you can try your luck with a ground line, as illustrated by Fig. 4. The idea consists of two pegs well driven into the sand, between which is fastened a line containing several hooks. The arrangement should be placed far out on the sand when the tide is out. The hooks are baited in the usual manner, and you then have to wait until the tide has come in and gone out again, when the catch will be revealed on the hooks. Of course, there is no thrill got by using a ground line, but, on the other hand, if you are spending the day on the beach there is always the last-minute wonder of what you will find on the hooks. Remember to follow the tide as it goes out, since the seagull is all game for easy food, and if you are not there in time your fish will have been removed.

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CLUES.

ACROSS.

1. The Summit.
4. Miners work in these.
9. A horned sheep.
10. Female fowl.
11. The ocean.
12. Cowboy film star—first name Tom.
13. To cut with an axe.
15. This falls from the sky.
16. To get the better of.
18. A small child.
19. Short for Mother.
21. Free from pain.
23. Short for Father.
24. —— and downs.
26. Native of Poland.
27. Short for Royal Engineers.
28. A row of seats.
29. Cat with long, silky hair.

DOWN.

1. A footprint.
2. An imprecation.
3. Opposite to "a.m."
4. A female.
5. Most important organ of the body.
6. Inside.
7. Not fat.
8. Half-a-dozen.
12. The Japanese Emperor's title.
14. Plural of "oboe."
17. Not fresh.
20. To murmur like a cat.
22. Tops do this.
25. Vegetable which grows in a pod.
26. Short for "professional."
28. Short word meaning "thank you."

Post your entries to reach us not later than Friday, July 17th, addressed "Hobbies," "Crosswords" No. 5, Competition Dept., 39, King Street, Covent Garden, W.C.2.

RULES.

1. Attempts must be on coupons from HOBBIES. 2. Postage stamp value 1½d. must be attached, *by the corner only*, to each coupon. 3. In the event of ties the prize will be equally divided. 4. Employés (or members of their families) of George Newnes, Ltd., or its associated companies, are not allowed to compete. 5. The Editor's decision is final in all matters relating to this competition.

YOU MAY SEND ANY NUMBER OF ATTEMPTS

RESULT OF "REMARKS" PICTURES.

See page 454.

RESULT—WHAT ARE THEY SAYING?

In the issues of "Hobbies" dated May 16, 23, 30, and June 6 Fifty Long-Flying Model Planes and 60 other attractive Prizes were offered for the nearest correct solutions to a series of Pictures representing every-day "Remarks," to be indicated on the coupon by the number given against the "Remarks" in the list published with each weekly set. The following represents a copy of the official list of solutions in the Editor's possession :—

SET No. 1—A 6; B 2; C 10; D 5; E 3; F 8; G 12; H 4. SET No. 2—I 8; J 7; K 6; L 2; M 13; N 5; O 1; P 15. SET No. 3—Q 4; R 7; S 2; T 13; U 15; V 9; W 10; X 5. SET No. 4—AA 7; BA 11; CA 14; DA 2; EA 3; FA 9; GA 16; HA 12.

Fifty-one competitors submitted entries with only five, six or seven mistakes in their entries, and a Long-Flying Model Plane has been awarded to each of the following :—

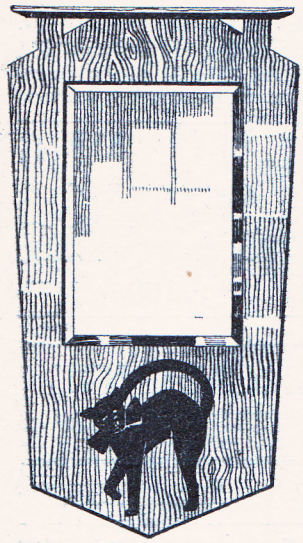
Andrews, L., Belle Vue Cottages, Darton Lane, Mapplewell, Barnsley; Back, L., 2, New Rents, Newchurch, Kent; Barwell, F., 1, Boswell Quadrant, Edinburgh; Blackburn, J., 3, Avondale Rd., Derby; Browse, M., 22, Cearns Rd., Oxton, Birkenhead; Bunce, R., 16, Ashville Ter., Moston, Manchester; Bushey, J., 32, Carr St., Burnley; Clark, C., 9, Norfolk St., Leicester; Clarke, C., 48, Clifford Avenue, Beeston, Nottingham; Colton, L., 11, Cranburys, Nechells, Birmingham; Creegan, P., 67, Powys Ave., Town Hill, Swansea; Dickson, J., 29, Surrey St., Sheffield; Donald, C., Rocheville, Stoney Lane, Winchester; Edge, W., The Gardens, Penllergaer, Swansea; Evans, N., "Angorfa," Sterry Rd., Gowerton, Swansea; Franks, H., 90, Kings Rd., Prestwich, M/C.; Frary, I., 56, Gt. Walsingham, Norfolk; Fritchley, C., 107, Bestwood Rd., Hucknall, Notts.; Gough, P. A., 76, Leicester Avenue, Kelvinside, Glasgow; Griffiths, C. H., Glanrhydw Lodge, Nr. Kidwelly, Carm.; Grogan, H., Sea Road, Galway; Glascodine, J., 36, Orchard St., Aberdeen; Hawley, J. T., 15, New St., Longton, Staffs.; Higging, T., Main St., Ballyshannon, Co. Donegal; Jackson, A., 21, Haddon St., Beswick, Manchester; Jones, D., "Lorna Doon," Ramsden Bellhouse, Essex; Loader, Miss A., 375, Springdale Ave., Huddersfield; Lowe, R. F., 78, Newcombe Rd., Handsworth, Birmingham; Lovelace, F., 14, Gaskell Rd., Highgate, N.6; McConnell, D., 61, New St., Stevenston, Ayrshire; McCracken, J. G., 31, Cannongate, Edinburgh; Miles, G., Oast Cotts., Cleveminster; Millward, F., 13, Hollin Park Crescent, Leeds; Olliver, A. C., 10, Kimberley Rd., Brighton; Parker, Miss P., LaSource, St. Martin's, Guernsey; Perryman, F., 1, Palace View, Newtown, Bishops Waltham; Peterson, A., 16, Freeman St., W. Hartlepool; Priestnall, G., 1, Suffolk Rd., Milton, Portsmouth; Richards, K., 63, Trynside, Sea-Mills, Bristol; Rowe, V., Richmond, Wexford; Stamps, C., 124, Florence Rd., Smethwick; Taylor, W. G., 70, Woodcourt, Hollingwood, Chesterfield; Thomson, E., Ottince Court, F.M. Elham, Nr. Canterbury; Warburton, P., 238, Bowtharo Rd., Norwich; Warren, W., 4, Amy Rd., Oxted, Surrey; Welch, A., 335, Staines Rd., Hounslow; Westwood, H. G., 121, Victoria Rd., Handsworth, Birmingham; Woodman, J. B., Westhay, Streatham Hill, Exeter; Wragge, K., 27, John St., Knutton, Stoke-on-Trent; Wiley, L. E., 82, Bright St., Wolverhampton; Willoughby, G., Worlds Wonder, Elham.

The seventy-nine readers whose names appear in the attached list were the next nearest with eight mistakes, and they will each receive a splendid Consolation Award.

Adie, James, 144, Eldon St., South Shields; Allen, T., 5, Woodville Ter., Everton, Liverpool; Appleton, J., 37, Rookstone Rd., Tooting, S.W.; Atkins, A. E., 24, Cannock Rd., Burntwood, Lichfield; Baker, J. D., 229, Belmont Rd., Belfast; Bambrough, G. O., 25, Springhill Ter., Headingley; Barnden, R. W., 26, Linden Grove, Peckham, S.E.15; Bartlett, Cyril, 22, Greenway Rd., Neath, Glam.; Basham, C. E., 30, Mill Rd., Haverhill, Suffolk; Beaver, R., 21, Heyhead St., Brierfield; Bielby, Leonard, New Village, Cottingham, E. Yorks; Bond, C. D., 6, Linton Rd., Hastings; Broadbent, D. J., "The Russells," Roman Rd., Shrewsbury; Cannell, T. K., 11, Selborne Rd., Douglas; Clarke, Edw., 10, Colebrook Rd., Greet, Birmingham; Clunsy, James, 88, Coombe, Dublin; Couzens, Maurice, Hill View, Clay Hill, Bushey, Herts; Creasey, R., No. 5 Camp, Perham Down, Ludgershall; Dowsett, E., 12, High St., Teddington; Drinkwater, H. V., 13, Bevan St., Port Talbot; Duckworth, E., 8, Tranmere Rd., Blackpool; Ergis, F., 39, Warley St., Green St., E.2; Francis, Samuel, 4a, New Row, Dublin; Garner, F., 9, Scarborough Rd., Leytonstone, E.11; Gerrard, Reuben, 5, Primrose St., Morecambe; Gunnee, H., 6/5, Providence Rd., Sheffield; Harrison, Joseph, 5, Arbories Ave., Padiham; Heap, Fred, 120, Folly Lane, Swinton, Manchester; Hogg, Harry S., 17, Eglantine Ave., Belfast; Horner, Leslie, 7, Allison St., Stockton-on-Tees; Houlton, G. D., 6, Baker St., Hull, E. Yorks; Howarth, H., 27, Aylesby Ave., Gorton; Jeffcoate, Mabel, 23, Birkenhead Ave., Kingston-on-Thames; Johnstone, Mrs., Grahamshill, Kirkpatrick, Flg., Lockerbie; Jones, A. E., 3, Blue Bell, Holyhead; Jones, D., 110, Beaufort St., Brynmawr, Brecon; Keegans, John, 24, Shawhead Ave., Whifflet, Coatbridge; Keep, P., Oakleigh, Eastcote Rd., Ruislip; Kelly, T. F., Skehanore, Ballydehob, Co. Cork; King, Peter, 5, Dockyard Ter., Chatham; Knox, H. J., 45, Venice Ave., Burnley; Ledwidge, Thomas, 29 Lower Gloucester St., Dublin; Lemon, F. E., 4, Lichfield Rd., Becontree; Lloyd, Edward, 1, Powell's Lane, Welshpool; Macnab, William, Skene House, Macduff; McMaster, R. H., 50, Moyola St., Belfast; Mears, A., 34, Vine Rd., East Molesey; Miller, F. G., 15, Parker St., Cleethorpes; Milne, Arthur, 30, Stanley St., Aberdeen; Morgan, L., 38, Lloyds Ter., Cymmer, Port Talbot; Moret, G., 23, Berridge Green, Edgware; Nelson, G., 24, Dupont Rd., Raynes Park; Nicholas, Jack, 6, Hawthorne Ter. Leek; Pattenden B. J. A. 68, Avern Rd., East Molesey; Percival, C., 22, Manton Rd., Plumstead; Pollock, Guy, 173, Muir St., Larkhall, Lanarks; Pratt, T. 33, St. Thomas Rd., Hastings; Putland, George, 2, Fellows Rd., Hastings; Reed, M., Old Buckhurst, Withyham, Sussex; Richards, Emlyn, "Croft," Bonymaen, Swansea; Ridley, A. B., 56, Underdown Rd., Southwick; Robson, John, 30, Eamont Gardens, West Hartlepool; Samson, D., High Trees, Marshalls Drive, St. Albans; Sayers, D. P., 165, Parchmore Rd., Thornton Heath; Smith, Neville, 3, Portland Ter., Newcastle-on-Tyne; Smith, Colin, 14, St. Julian's Farm Rd., West Norwood, S.E.; Smyth, James, 120, Ark Lane, Glasgow, E.1; Stables, Fred, 187, Carbrook St., Sheffield; Stephenson, R., 128, Whitethorne Cres., Cowgate, Newcastle; Stock, R., 34, Thackeray Rd., Southampton; Stuart, Alex. A., 6, Fairrie St., Greenock; Sutton, C. R., 218, Hendon Way, Hendon, N.W.4; Tilbury, C. L., The Drive, Southbourne, Emsworth, Hants; Twyman, W., 104, Woodnesboro' Rd., Sandwich; Viney, H., 43, Gothic Rd., Twickenham; Walker, George, 15, Arthur St., Rawmarsh, Rotherham; Ward, William Arthur, 39, Marl Cres., Llandudno Junction, Carns.; Wheelwright, W. T., 27, Blounts Rd., Erdington, Birmingham; Wilkins, T. W., 94, Asylum Rd., Peckham, S.E.15.

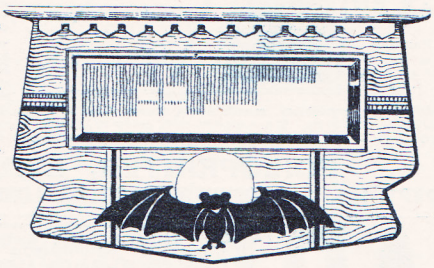
TURN TO PAGE 453 AND TRY YOUR HAND AT "CROSSWORDS."

RESULT OF No. 1 NEXT WEEK.



NOVEL FRETWORK ORNAMENTS

HERE is a novel way of decorating your mirror or picture frame. First of all see that you get a really artistic and unusual shape to your frame, and, of course, design the outline to balance the shape of the mirror or picture in hand. Then choose your lucky charm or symbol and cut it out in thin wood and glue it to your frame, having previously stained and polished the latter to the required depth of tone. Our sketch shows such a frame designed to take Hobbies mirror No. 5742, with a lucky black cat cut out and fixed.



At Fig. 1 the frame is shown in outline with all dimensions included so the worker may draft out his outline either direct on to his wood or on to paper ready for sticking down and cutting round. One panel of mahogany (A) measuring 15in. by 10½in., as sold by Hobbies for 1s., is sufficient for making this frame, the narrow chamfered shelf at the top being cut from spare wood and glued and screwed on. The mirror may be let into the framing itself with a beading or fillet glued round on the face of the frame to form a rebate, or the opening may be cut $\frac{3}{16}$in. or so smaller all round and the mirror dropped between mitred fillets screwed to the back. A backing of common wood may be nailed in and brown paper glued over.

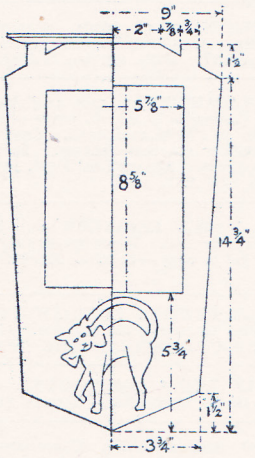


Fig. 1.—The shape and dimensions of a mirror frame.

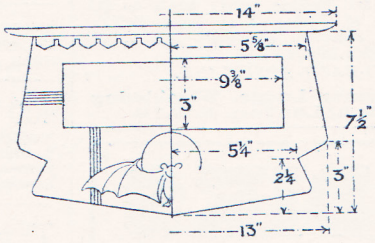


Fig. 2.—Details of the other frame illustrated above.

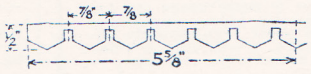
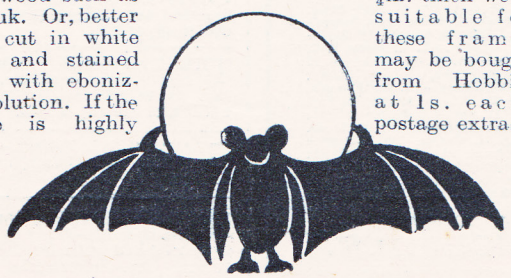


Fig. 3.—The drop ornamental portion.

The overlays are cut in white wood or some very dark wood such as padouk. Or, better still, cut in white wood and stained black with ebonizing solution. If the frame is highly polished the polish must be scraped away where the overlay is to be glued. The mirror frame shown in the second illustration is a useful size, to which the flying bat and moon *motif* lend an artistic touch. Fig. 2 gives the necessary details for marking out the measurements. On the right is shown the outline, while the detail on the left gives the position of the top shelf with overlay beneath. The latter also shows the position for two bandings to be put on either in wood stain direct on the frame itself or as thin overlays which are afterwards stained up. At Fig. 3 is the shaped overlay under the shelf, cut from thin wood in a similar manner to the " bat " overlay under the mirror.

There is also an enlarged form of the two overlays mentioned, and an added *motif* of the owl. In conclusion we might add that these overlays look equally as well cut in a white wood and fixed to a dark frame. We rather think that the contrast in this case would perhaps be greater than if the overlays were black on a dark ground. If the worker should have any difficulty in enlarging the outlines of these frames or the overlays which adorn them, we should be glad to help him by transferring the design direct to the wood for him, in which case he must send his wood and sufficient stamps for return carriage. Hobbies Ltd. supply mirror No. 5742 (size 8⅝in. by 5⅞in.) for 2s. 9d., and mirror No. 5728 (size 9⅜in. by 3in.) for 1s. 6d., postage extra. Panels of ¼in. thick wood suitable for these frames may be bought from Hobbies at 1s. each, postage extra.



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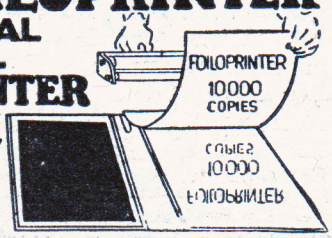

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RARE STAMPS OF SWAHILILAND

Conducted by P. L. PEMBERTON.

Mark all envelopes containing stamp queries with the word "Stamps" in the top left-hand corner.

YOU may search any English catalogue or album from end to end and find no mention either of Swahililand or its stamps. Nor do the standard catalogues of America and France condescend to notice the curious little squares which once did postal duty in that portion of Swahililand which is now included in the colony of Tanganyika. The indifference of the rest of the world, however, is compensated by the reverence with which these little scraps of paper are regarded by Germans. The catalogues and albums of the Fatherland record the existence of 96 varieties, of which the cheapest is priced at £25! If you have a mind to make a complete collection of the stamps of Swalieliland (this is the German spelling) you will require about £5,000, and even then you might find some of the varieties elude you—for many of them rank among the world's great rarities.

The first issue of the rare Swahililand stamp.

Admittedly the issue was purely local, though no more so than those of many of the native States of India, which are included in all catalogues. There does, indeed, seem to be some reason for the German contention that the exclusion of Swahili stamps from non-German catalogues is both inconsistent and unfair. However that may be, collectors over here are spared the task of attempting to fill nearly a hundred impossible spaces in their albums.

History of Swahililand.

Romance and tragedy are curiously interwoven in the history of the issues. Some time about 1885, when Germany was playing such a big part in the "scramble for Africa," two brothers named Denhardt went out to Zanzibar and established themselves firmly in the councils of the Sultan of that thriving island. They engineered the "understanding" between the dusky ruler and the Emperor of Germany which speedily led to Zanzibar being placed under German "protection." Clemens Denhardt, in 1889, was granted many trading concessions, and on payment of 13,000 rupees himself acquired all postal rights in the coastal districts of Swahililand which lie on the mainland opposite the island of Zanzibar. The service was organised on sound lines and the stamps were issued. The latter were not prepossessing in appearance. Smaller than the average in size, they bear, in place of a design, three lines of native inscription showing in white on a solid background. A single hand-stamp sufficed to print all values, which were differentiated by being struck on papers of varying colour. The die was renewed four times during the short time the stamps were in use, and there were also three types of official stamps.

The Swahili "service" stamp of very great rarity.

Lost at Sea.

Any suspicion that the stamps were made for collectors seems to be denied by the complaints from collectors that they could not find any. On the other hand, it is said that a large quantity of remainders, subsequently consigned to Germany, went to the bottom of the sea, and it may be that Denhardt had harboured some idea of marketing them to the best advantage.

Ruin overtook the enterprising brothers—as a direct result of their success. The influence of Germany with the Sultan of Zanzibar, so greatly due to Clemens Denhardt's activities, attained such importance that England offered to give up possession of the island of Heligoland, which is situated about twenty-five miles from the German coast, in exchange for the withdrawal of all Teutonic claims to the island of Zanzibar. This was agreed to and the exchange ratified by the agreement of July 1st, 1890. Thereupon Denhardt found himself stripped of all his concessions, and, by a stroke of the pen, was transformed from a wealthy administrator into a humble citizen. The postal service was, perforce, suspended. Returning to Germany, Denhardt sought to get from the imperial government a grant which should compensate him for the loss of his livelihood and for his endeavours on behalf of the empire. All he received was a beggarly £7,500, barely enough to pay his debts.

Now comes the pathetic part of the story. Denhardt lived for the rest of his life in poverty, yet was in possession, if he had only known it, of riches which would have made him comfortable for life. He died in 1922. Among his scanty effects was an old trunk which nobody wanted, and which was left in an attic. This was examined a few months ago, and in the lining were found a large number of his Swahili stamps to the value, as it has been stated, of £50,000!

Another type of service stamp.

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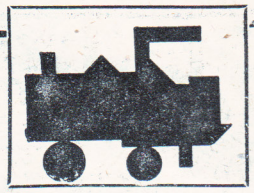
OUR PHILANAGRAM COMPETITION!

The closing date for this special stamp-collectors' competition is July 15. The issues containing the four sets of stamp puzzles (Nos. 1858, 1859, 1860, and 1861) may be obtained for 3d. each from the Back Number Dept., Geo. Newnes Ltd., Exeter Street, Strand, W.C.2.

A "SHAPES" COMPETITION



THESE competition pages are always a source of interest and amusement to our readers and the variety which has already appeared has made a strong appeal to a large number. The prize of an A1. machine which is being continually offered is undoubtedly a great attraction, but at the same time the competition itself is kept so simple that anyone can enter and get a large amount of amusement out of the contest as well. Evidently our readers have brains and ingenuity, because in some of the competitions in the past, some very original entries have been sent in.

We would ask those who enter to make certain that they have put the correct postage on, and also if they want the actual entry returned, to be sure and include sufficient postage stamps for the purpose. This is very important. The wide range of these competitions has proved of great interest, and this week we illustrate another simple little teaser which will keep anyone occupied for some time and will create endless hours of fun even apart from the competition itself.

All you have to do is to paste down the squares and circles and little black parts shown below on to a piece of wood. Cut them out with a fretsaw, and then, using them like jig-saw patterns, see what sort of figure you can fit up. It is amazing the variety of shapes which can be formed with these sixteen parts, and two examples are given at the top of this page. No doubt you will be able to form half a dozen different quaint shapes of animals or figures or everyday objects of one kind or another.

When you have got the one you like best, draw its shape on a postcard, illustrating exactly how the parts are put. Add your name and address and send it along to The Competition Dept., Hobbies Ltd., Dereham, Norfolk, so that it reaches us not later than July 18th. The popular A1. Treadle Fretmachine will be awarded to the figure which the judges think the best, and the name of the lucky reader will be announced in these pages as soon as possible afterwards. Everybody stands an equal chance.

Do not be in a hurry to send in the first shape you make up, but see if you cannot improve upon it before sending in your final effort.

Send your entry to "The Competition Dept.," Hobbies Ltd., Dereham, Norfolk, before July 18th.

KEEPING SILKWORMS.

YOU require a shallow wooden box, 10in. to 12in. long by 8in. or 10in. wide and 3in. deep. At the four corners nail an upright 8in. high, and add a roof of cardboard. Get some fine white gauze and sew it together so that it completely envelops the whole box. In one of the sides cut a slit about 5in. long, and sew an arm-shaped piece of gauze on to the sides of the slit; tie up the loose end of the arm with a piece of narrow tape. Take care that you make a good job of the sewing, so that no inmate escapes.

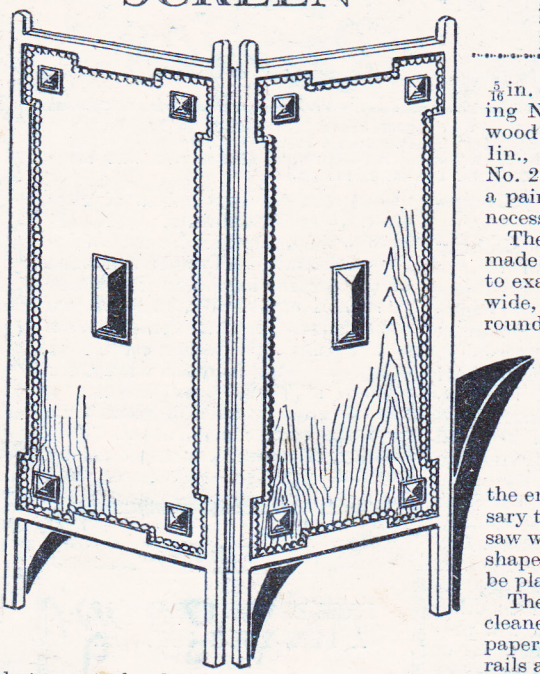
Having obtained the eggs and placed them inside, watch for their hatching; when the caterpillars appear immediately place some food inside; indeed, it is advisable to place food for the caterpillars just before they hatch, as they need food as soon as hatched. Leaves of mulberry tree should be placed in a small bottle of water and put inside the cage, but you will have to wedge paper around the stalks so that the caterpillars do not creep down into the bottle. Keep renewing the supply of fresh leaves day by day. Clean out the refuse lying at the bottom of the cage every other day.

After the fourth moult, prepare a number of V-shaped sugar bags, standing them on end in a box. A few days must then elapse, and then, when you find that the opaque yellow colour of the caterpillars has given place to a transparent glossiness, place each insect in a bag; it will then commence to spin its cocoon of silk.

The cocoons are collected before the moths are ready to emerge; they are dropped in water to kill the inmates and to soak off the sticky material, and then comes the final process of unravelling the threads.

A FIREPLACE SCREEN

A FIREPLACE screen made to the design shown here is suitable for the drawing or dining-room of any home. It is a job which the fretworker or amateur carpenter may undertake with confidence, and may be carried out by a very simple method of construction which will not tax the capabilities of even the younger readers of HOBBIES. Two frames made to exactly the same design and of the same dimensions are used, and they are hinged together to form the complete screen. The frames are made in a very simple way, thin pieces of fret or plywood are used for the panels, and the small rails which form the framework are fixed around the edges. As the rails need not be framed up in any way, there are no joints to bother about, and it will be seen that the construction is a very simple matter. The edges of the frames are ornamented with fancy beading, and wood ornaments are fixed in the positions shown. The dimensions of the finished screen are shown at Fig. 1.



All the material may be obtained at a cost of only 5/- from Hobbies Ltd., and, while almost any kind of wood may be used, oak is certainly the most suitable. We shall require two pieces of $\frac{3}{16}$in. oak fretwood or oak-faced plywood, 1ft. 9in. long by 10in. wide; four upright rails, 2ft. 2in. long by 1in. wide by $\frac{3}{8}$in. thick; and four cross rails, 9in. long by 1in. wide by $\frac{3}{8}$in. thick. The four upright rails could be cut from a piece of $\frac{3}{8}$in. fretwood 2ft. 2in. long by 4$\frac{1}{2}$in. wide, and the four cross rails from a piece 9in. long by 4$\frac{1}{2}$in. wide. In addition, 12ft. of $\frac{5}{16}$in. quarter-round fancy beading No. 59, eight raised square wood ornaments No. 212, size 1in., two oblong ornaments No. 213, size 3$\frac{1}{2}$in. by 1$\frac{5}{8}$in., and a pair of 1$\frac{1}{2}$in. brass hinges are necessary to complete the screen.

The panels should first be made up. They are squared up to exactly 1ft. 9in. long by 10in. wide, and their edges are neatly rounded over. The rails should next be prepared to the patterns shown at Fig. 2. It will be seen that all the rails are 1in. wide in the middle, and that they are shaped on one edge to bring the width to $\frac{1}{2}$in. at the ends. A small saw is necessary to cut out the rails; a fret-saw will be helpful in cutting the shaped parts, and the edges must be planed straight and square.

The panels should be well cleaned and finished with glass-paper, after which the upright rails are glued at the edges, and are further fixed by driving small brass screws or fret-work nails through the panels, as shown at Fig. 3. The cross rails are then fitted between the uprights, as shown at Fig. 4, and are fixed in exactly the same way; while, to further strengthen the work, small nails may be driven through the uprights into the ends of the cross rails. The quarter-round fancy beading is then glued and pinned around the inner edges of the rails, the square ornaments are fixed at the corners, and the oblong ornaments in the centre of the panels. A good cleaning down with glass-paper is necessary, and the frames may be stained and polished before they are hinged together.

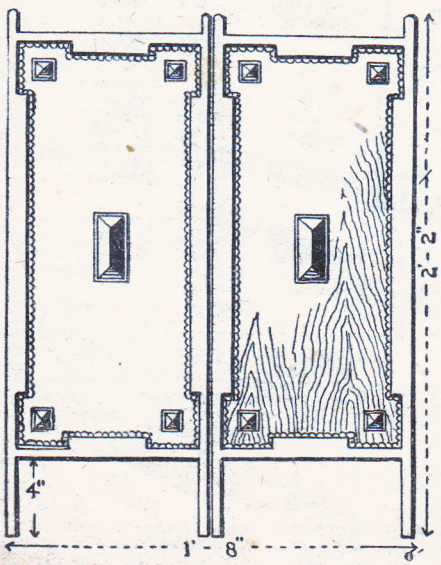


Fig. 1.—A flat view of the screen with wings open, showing style and dimensions.

Fig. 3 (centre).—A detail of the way in which the panels are nailed and glued to the rails.

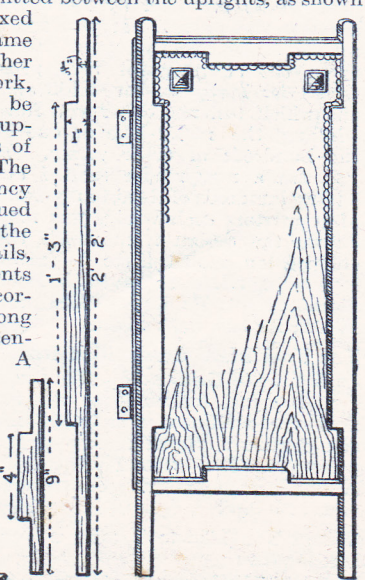
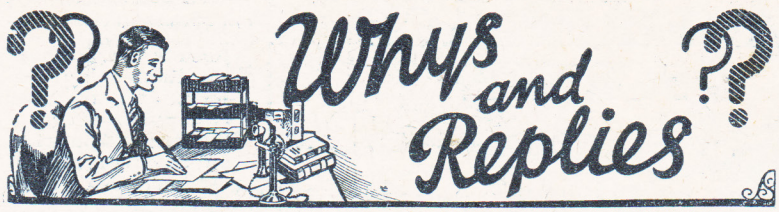


Fig. 2.—Four rails each of the above shape and size are required for the framework.

Fig. 4.—One of the completed wings with the hinges fixed ready for joining to the other.



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Our Great Model-Making Competition.

I EXPECT that you are all busy making up the model of the *Britannic* which formed the subject of our great model-making competition announced in the last issue. Do not hurry the work; but send in such a mass of entries that by sheer force of numbers I shall be compelled to increase the prizes, and those of my readers who are still at school (for my readers embrace all ages from seven to seventy) have, I hope, shown their headmaster our offer to supply goods to the value of three guineas to the school sending the best combined entries. Each of these entries will, of course, be judged independently from the other prizes—that three guineas will provide your school with a new set of cricket stumps, bats and balls, or with some of the many other things which every school needs but which have to be provided by the other scholars themselves. If you are a scholar, then, see that your school is in the running for that prize which is, I repeat, an additional one which will not debar you from winning the motor-bike or one of the hundreds of other prizes. If you are a new reader (and I am adding hundreds of them to my band of supporters each week), you may obtain the design from which the competition model is to be made by sending 3d. in stamps to the Back Number Dept., Exeter Street, Strand, W.C.2, for last week's issue.

The Tool Maze Competition Result.

AS I write these notes, the judge has just looked in to tell me that the fortunate winner of the A.1 machine offered in the above competition was Phillip Carr, Ardwick, Manchester. Congratulations, Phillip!

Would You Like to Become a Ventriloquist?

DOUBTLESS many of you have witnessed those clever ventriloquial turns which are sandwiched in between the two halves of most cinema entertainments. Nearly always they entertain far more than the weak and thin type of American film at present foisted on the British public. I expect that most of you have presumed that ventriloquism is a natural gift which cannot be acquired. This is quite wrong, for almost anybody can become a ventriloquist in quite a short time once the secrets are known. Proficiency, of course, will only come by constant practice. An expert will tell you very shortly in these pages not only how to control your voice and to make it appear to issue from the dummy, but also how to make the dummies.

NEXT WEEK.

FREE DESIGN SHEET FOR A FINE LOUD SPEAKER

MAKING A STEREOSCOPE

A SPLENDID SURF BOARD

BUILDING A REAL CAMERA

MAKING AN INDIAN KITE

Model Aeroplane Topics—Stamps—Electrics—Cycling Notes, Etc., Etc.

Let Me Solve Your Queries.

BY "me" I refer as well to my technical staff who can answer any question capable of solution. Don't let a problem trouble you for weeks, for ingrowing problems can be troublesome things. Just jot it down on a piece of paper and send it to me observing the conditions printed at the top of this page. The solution to the problem will be speedily forthcoming. This service, which is free to readers, is not confined to the solution of problems alone, for quite a number of my readers seek information as to where special things may be obtained. Relieve yourself of a lot of worry by passing your difficulties on to me.

QUERIES AND REPLIES.

Shooting Through the Propeller of an Aeroplane.

Yes! J. G. (No Address), it is quite possible to fire bullets through the plane swept by the propeller of an aeroplane. This is accomplished by means of a simple device geared to the propeller shaft, which ensures that the bullet passes through when the propeller is horizontal.

Chemical Signs for Metal

Chemical signs, R. F. (Pontefract), are only used to denote metals which are elements. Alloys, of course, are not included. These symbols consist of the initial letters of the name in English or Latin. Where there are several elements with the same initial letter a supplementary one is used. The following is a list of the more popularly-known metals: Aluminium, Al; Antimony, Sb; Barium, Ba; Bismuth, Bi; Cadmium, Cd; Chromium, Cr; Cobalt, Co; Copper, Cu; Gold, Au; Iron, Fe; Lead, Pb; Manganese, Mn; Mercury, Hg; Nickel, Ni; Platinum, Pt; Radium, Ra; Selenium, Se; Silver, Ag; Tin, Sn; Vanadium, V; Zinc, Zn.

Condenser Values in Wireless Circuits.

The aerial tuning condenser, or A.T.C., should be variable and have a value of 0.0005 mfds., L. G. (Brighton). A "constant aerial tuning" condenser is a small fixed condenser having a value between .0001 and .0003 mfd. and is connected in series with the aerial.

If a secondary coil is used, place a variable condenser of about 0.0003 to 0.0005 mfd. in parallel with it. Anode coils may be shunted with a variable condenser of about 0.0003 mfd., or even smaller. The grid condenser, a fixed one, is generally 0.0002 or 0.0003 mfd., used in conjunction with a grid leak, the resistance of which should be 1, 2 or 3 megohms. The H.T. battery bypass condenser has a value of 2 mfds., while the bypass condenser across the primary winding of a L.F. transformer may be 0.001 mfd. If a condenser is placed across the 'phones, the best value for telephony should be found by experiment.

An Optical Illusion.

T. N. (Newport) wants to know why wheels of carts, etc., in cinematograph pictures, sometimes appear stationary and at other times to be revolving backwards, although the vehicle is moving forward? This effect is due to an optical illusion. It is well known, of course, that the cinematograph picture is made up of a continuously appearing series, at the rate of approximately sixteen per second. In the case of a picture of a wheel, if it so happens that in the interval between two pictures a spoke has moved exactly the same distance as that between two or more spokes, then, the appearance of every spoke being alike to the eye, there is no apparent change and the wheel appears stationary. Should the movement be a little short of one or more spoke spacings, then the wheel appears to be moving backwards. In the same way, if the movement just exceeds the spoke spacing an impression of a very slow forward movement is created.

The Temperature Below the Earth.

The temperature 50ft. below the earth is practically the same throughout the year, K. N. (Dorking).

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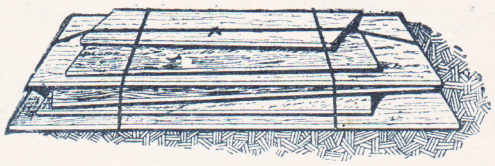
Of all leading ironmongers Hobbies Branches in London, Glasgow, Manchester, Birmingham, Sheffield, Leeds, Southampton, Brighton

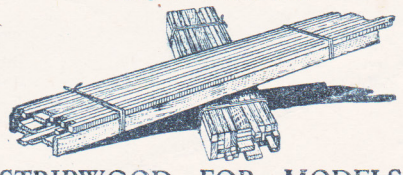


PARCELS OF PLANED FRETWOOD

You always need fretwood. Here are two special parcels of sound quality boards. The timber is supplied planed both sides in popular thicknesses and varying width. Lay in a stock now—this is the cheapest way to buy.

6ft. Assorted Wood 3/16in. thick ... 3/- **9ft. Assorted Wood 3/16in. and ¼in. thick ... 4/6**

Postage 9d. extra on each.



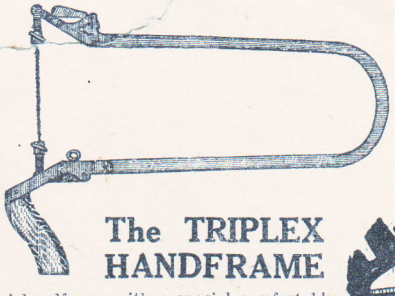
STRIPWOOD FOR MODELS

Stripwood is ideal for blocking fillets, stretcher pieces, etc., as well as for model making and toy construction. It is useful on lots of occasions and sold in bundles of planed strips 2ft. long. An assorted bundle of 50ft., 2/6. Post free 2/10½.

Write for particulars and free lists to Hobbies Ltd., Dereham, Norfolk.

Bargains in Fretwork Tools

Three popular and reliable fretwork tools of sound British make. Modern cutting tables are made of metal, and the handframe is a new type with special handle and lever movement.



The TRIPLEX HANDFRAME

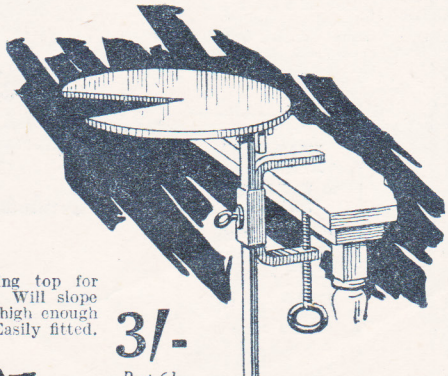
A handframe with a special comfortably shaped handle and three levers which make the saw tension quick and simple. A big advance in handframes.

12in. **4/-** 14in. **4/3**

Postage 6d. extra.

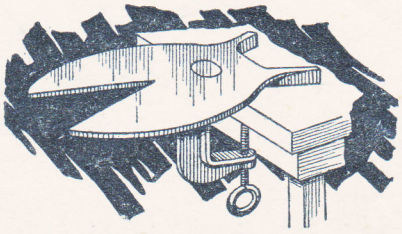
A TILTING CUTTING TABLE

Specially made with a tilting top for bevel cutting or autofret. Will slope either way and can be fixed high enough to undertake large work. Easily fitted.



3/-

Post 6d.



The FAVOURITE CUTTING TABLE

This table is always a popular one. It is a modern steel fretwork table with an ingenious and simple method of fixing. Made of cast metal, with strong fixing cramp.

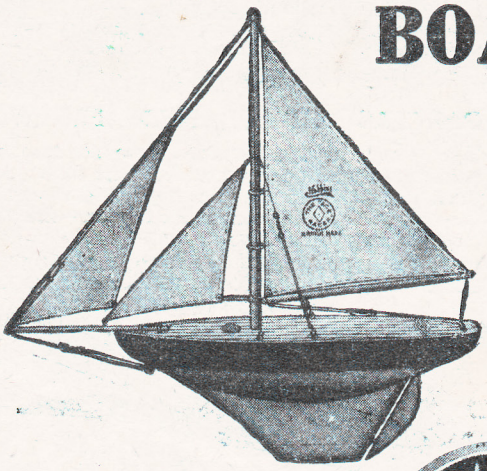
2/3

Post 6d.

These are obtainable through Hobbies usual supplies or Branches. By post direct from Hobbies Ltd., Dereham, Norfolk.

BOATS FOR ALL

A FASCINATING SPORT



The number of model yacht ponds there are now proves the popularity of this great sport. Until one has handled one's own boat and pitted one's skill against the other fellow the enjoyment cannot be understood. These Hobbies Boats are real models, and those with hollow hulls will stand to any breeze. Every one is a marvel at the price, is well made, balanced and finished.

British Boats for British Boys!

The "ACE"

(as shown above)

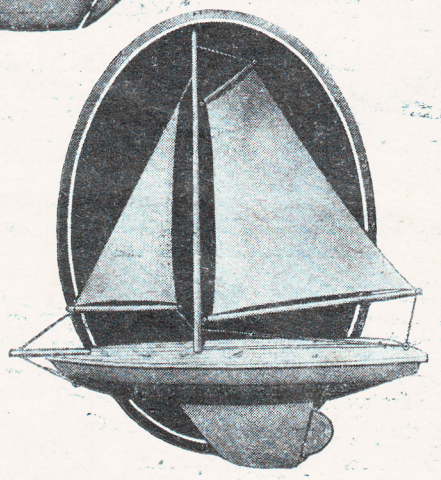
A strong well-built boat with solid hull and good spread of canvas. With detachable mast, and strong water cord lines. A marvel at the price.

11in. **2/6**

12in. **3/6**

Post 6d.

All boats are perfectly balanced, painted with waterproof enamel, have clean white sails and water cord lines in place of the cheap string usually found



THE "SEAGULL" YACHT

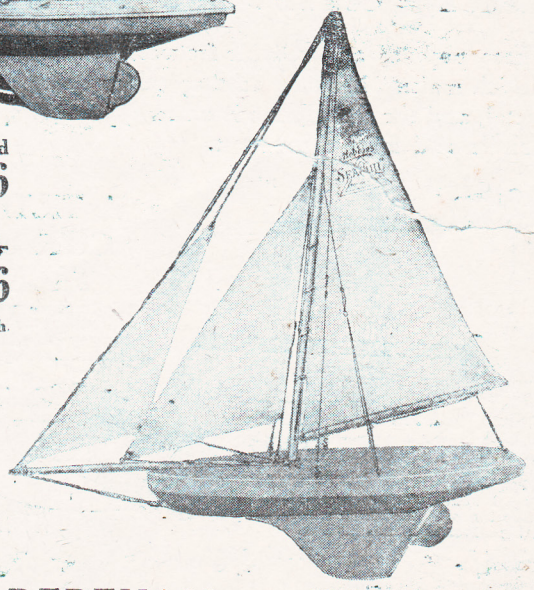
Deck 23 ins. long.
Height 26½ ins.

The finest yacht you can buy and honestly worth double. Hollow hull; weighted keel; running rudder; deck lined as planking; hull finished two brilliant colours enamel; strong sails and lines with detachable mast. Packed in strong box.

Two-sail, rigged as above **12/6**

Bermuda rigged. **17/6**

Post 9d. extra on each.



FREE LIST

Call or write for an illustrated wallet of these yachts and model steam launches. Leaflets giving details of each also on application.

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